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17-CENT CRUDE ADVANCE ANNOUNCED FOR JAN. 4

JURY ILLEGALLY DRAWN, CHARGE IN MADISON CASE

By Telegraph

MADISON, Wis., Dec. 7.—Possibility that all of the government indictments in the oil conspiracy cases might be thrown out of court and new indictments sought from a differently constituted federal grand jury was seen at the conclusion of federal court here today.

William J. Donovan, of New York, chief counsel for 18 of the indicted oil companies and their officers, charged that the jury that returned the indictments was illegally selected.

Donovan filed two pleas of abatement claiming irregularities in the selection of the grand jurors on behalf of the companies he represented. Six other defendant companies joined in these pleas.

The grand jury, which began its sessions in May, returned an indictment July 28 naming 23 major oil companies, three trade journals, and 58 individuals in an alleged conspiracy to fix and maintain retail gasoline prices.

The same jury Nov. 6, returned a further indictment in three counts, alleging that 24 oil companies and 46 individuals, many of whom had been named in the first indictment, had conspired to fix and restrict gasoline jobbers' margins.

If the government adopts the course of demurring to the complaint of Col. Donovan and the court overrules the demurrer, sustaining the defendants, a new jury and new indictments would have to be sought.

If new indictments are returned, the same procedure of arraigning the defendants in their own states will have to be followed, throwing actual trial of the case well into next year. The court did not set a time limitation for the government's answer or demurrer, in today's session.

After Col. Donovan had made his charges, arguing that, if the jury had been selected illegally, his clients rights were prejudiced, Federal Judge Patrick T. Stone said:

"Let's be practical. I can see that there is doubt as to the indictments. I would hate to get to the end of the trial of a six-weeks trial, and find that the indictments had to be quashed because the jury was improperly drawn."

John Henry Lewin, special U. S. district attorney, in answering Donovan, admitted that there was apparently some technical violation of the law fixing selection of grand juries, but contended that it was not sufficient to quash the indictments.

"We've had one dress rehearsal," Judge Stone said to Lewin. "How long would it take to draw a new indictment?"

"I think that, instead of work-

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Business Humming

LOS ANGELES—Service with a smile is one thing, but service with a smile, with two regiments of homeless bees swarming over your pumps, is something else again.

Lew Olson, of Brigham, Utah, had just serviced a large truck with 35 gallons of gasoline. As the truck pulled out of the station, some bee hives fell off the rear and were smashed on the station drive.

Olson and local police offered the bees numerous inducements to leave town, but the bees would have none of it. They were finally wheedled into new hives by a bee-keeper, the only one in Brigham.

Olson received much favorable comment for the manner in which he continued to give his usual excellent service throughout the "ceremony." And what is more, "Lew" secured some new business by capitalizing on the publicity it gave him.

Continental Oil Takes the Leadership In Raising Mid-Continent Schedules

By Teletype
N. P. N. News Bureau

TULSA, Dec. 7.—The posted price of crude oil will be advanced 17 cents a barrel on Jan. 4 by the Continental Oil Co. in fields where it purchases oil. These are in Oklahoma, Kansas, North Texas, New Mexico and the Rocky Mountain states.

The last previous general advance was Jan. 9, of this year, when Sun Oil Co. announced a 15-cent advance in East Texas, which soon spread to all fields east of California, ranging in amount from 5 to 25 cents a barrel.

Continental's statement, when the advance was announced, was in effect that it was on behalf of the producers in isolated fields, who have maintained reduced allowables in the face of an increasing general demand for crude oil which has developed friction among the state regulatory agencies down here.

On the other side of the fence, among the refiners, the feeling is different regarding the advance. Some think it would have been more appropriate coming in the early spring, in view of the sluggish gasoline season just ahead. Others say that the price of crude oil today is out of line, at present prices for refined products.

Support for the strong side of the market was seen in the announcement late today by the Standard Oil Co. of Indiana of an advance of 0.3 cent a gallon advance in gasoline tank wagon prices throughout its territory, effective Dec. 9. In September this company reduced prices 0.6 cent. Since then the tank car market for gasoline has advanced 0.25 cent a gallon.

In Oklahoma and Kansas, the increase will bring the top price for crude on Jan. 4 to $1.35 per barrel for oil of 40 degrees gravity and over. The present two-cent differential for each degree of gravity will be maintained.

In North Texas (Wichita Falls area) the present posted price is 10 cents less, hence the top price of Continental after the increase will be $1.25 per barrel.

The chief topic of conversation in this connection now is what the other purchasers will do. Barnsdall Oil Co., Globe Oil & Refining Co. and Derby Oil Co. have already said they would meet the raise on the day designated. Barnsdall and Globe buy in Oklahoma and Kansas, Derby in Kansas only.

No major buyer has yet declared its intention. It will not be surprising if they wait a while. Dan Moran, president of Continental, made his announcement a month ahead just to take care of that period of figuring which accompanies crude oil price changes. He told NATIONAL PETROLEUM NEWS the usual custom of announcing a change one evening, effective the next morning, always resulted in several days of confusion and that with holidays near, his company was allowing plenty of time.

He hoped, he said, that the industry would be unanimous in making the change, as the situation clearly demanded higher prices.

In a formal statement, he gave the reasons for his belief in higher crude prices. He said:

"The bases for such a decision are definitely reflected in the drastic declines in crude inventories, the splendid co-operative spirit exemplified among compact states in their proration proceedings and the unusual competitive demand for pipeline connections.

"A war among producers is

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17-Cent Crude

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imminent unless fair recognition is given their continued adherence to reduced allowables in isolated fields where special treatment will be required to perpetuate the balance that must be maintained among producing states and the law of supply and demand.

"The producer deserves compensation for his adherence to various conservation programs and a better price will undoubtedly lessen protests against localized reduction in allowables. In short, the producer must have higher allowables or higher prices. In the belief that it is for the good of the industry and in the interests of conservation, we have elected to take the latter course.

"It must be kept in mind, however, that to sustain an increase, all producers must do their part by restricting unnecessary drilling."

The announcement of the Continental to advance prices came on the heels of the biggest row that has been raised in many months in the southwest among the state regulatory agencies over allowable production.

When Texas set its starting figure for December at 1,201,000 barrels daily, some 56,000 barrels more than the Bureau of Mines forecast as the demand, Oklahoma and Kansas regulatory bodies promptly made themselves heard. Oklahoma had already written its order setting 567,000 barrels daily—Bureau of Mines estimate—as the allowable for December and the order had been signed by one member of the commission. Kansas also had intended to use the Bureau estimate, 155,900 barrels.

On Nov. 30 Chairman Ernest O. Thompson came to Oklahoma City to attend the Interstate Compact Commission meeting, set for the following day. Homer Hoch, chairman of the Kansas Corporation Commission, and two members of the Oklahoma commission had a set-to with Thompson. He stood his ground, said that the Texas commission had indisputable proof of demand for the amount of oil named in the order.

The result was the Oklahoma commission called a new hearing for Dec. 11 and it is understood that its allowable will be increased about five per cent over Bureau of Mines estimates, or more than 28,000 barrels daily.

The Kansas commission had not written its order but proceeded on Dec. 1 to write one, setting its December figure at 163,225 barrels daily, which lacks 470 barrels of being a five per cent hike over the bureau figure.

Crude oil buyers are not worried over this turn of events. Storage withdrawals have continued for many months and, anyway, neither Oklahoma nor Kansas has matched allowables with actual production. Invariably, the ordered total is exceeded. Latest Bureau of Mines figures on actual production for September show an overproduction in Oklahoma for that month of 18,200 barrels daily; in Kansas of 6900 barrels. Unofficial estimates were that Oklahoma produced in October a daily average of 565,000 barrels, or 5100 barrels daily over allowable and that the excess in Kansas was 6200 barrels daily on basis of 161,200 barrels production.

With the decline in production continuing in Oklahoma, excesses over the allowable probably will not be more pronounced for November than for October.

Purchasers say there will be no difficulty in absorbing the extra oil brought onto the market by the increase in the allowed production. The hunt for new connections continues; it is not expected there will be any increases in crude oil storage.

Still looking at the producers' side of the question, abundant proof can be adduced in justification of the price raise. This whole proration affair in all the southwestern states has been moving closer to a real snarl for months. Rate of drilling in proved areas was high and deeper and deeper cuts had been made in her well allowables.

ONLY THE PLANT FILLING CONTRACT IS UNDER W-H LAW

By Teletype
N. P. N. News Bureau

WASHINGTON, Dec. 4.—Where an oil marketer operates at more than one point, only the plant from which deliveries are made to the government is under the Walsh-Healey law, according to a ruling made at the request of Paul E. Hadlick, secretary of the National Oil Marketers Association.

Gerard D. Reilly, acting administrator of the W-H law setting labor standards for companies awarded government contracts, also advised Hadlick that, in a plant sufficiently large, only employes actually engaged in handling products going to a federal agency are subject to the new law.

Reilly stated that, in his opinion executives, salesmen, bookkeepers, stenographers, clerical help, watchmen and truck drivers are not covered by the W-H Law.

After considering the matter again, Reilly decided not to revoke the ruling which Hadlick protested last week in a letter to Secretary of Labor Perkins.

Defending this ruling, namely that refiners are exempt from the W-H law in their marketing operations although independent oil jobbers are not, Reilly said:

"The integrated (oil) companies obviously qualify as manufacturers and we have taken the view in connection with other industries that only those employes of manufacturers engaged in the function of manufacturing and preparing for shipment are covered by the act.

"Where we have had to rule with respect to the activities of regular dealers, however, this department has taken the view that those employes engaged in furnishing the product to the government should be covered by the act, thus including within its effect certain types of employes which would not be covered if they were pursuing the same occupation as employes of the integrated manufacturing company."

Reilly believes this is justified by wording of the W-H law.

"Thus section 1 (a) of the act," Reilly explained, "states that the contractor must be 'the manufacturer of or regular dealer in the materials', etc., constituting the subject matter of the contract. Section 1 (b) and the ensuing subsections of section 1 repeatedly refer to 'manufacture or furnishing' of the goods in question.

"It is apparent, therefore," he added, "since the manufacturing process of the manufacturers was intended by Congress to be covered by the act, that the term 'furnishing' was intended to apply solely to the regular dealer, it being his only possible activity in connection with the contract. And if Congress had intended distribution by a manufacturer to be covered by the act it would no doubt have used the conjunctive 'and' instead of the disjunctive 'or' between the words 'manufacture or furnishing' throughout section 1 of the act."

Discount Probe Asked

WASHINGTON, Dec. 7.—The Virginia Petroleum Jobbers Association's resolution asking an investigation of commercial discount policies of major oil companies and of margins allowed tire company service stations was presented to Chairman March, of the Federal Trade Commission, today by Secretary Hadlick of the National Oil Marketers Association.

The resolution charges that some consumers are being offered gasoline and motor oil at prices less than paid by some Independent oil jobbers.

Indiana Standard Raises Tank Wagon

By Teletype
N. P. N. News Bureau

CHICAGO, Dec. 8.—Effective Dec. 9, Standard Oil Co. of Indiana will advance 0.3 cent per gallon all normal tank wagon and dealer prices of the three grades of motor gasoline through its marketing territory. This included Illinois, Indiana, Iowa, Kansas, Northern Michigan, Minnesota, Missouri, North and South Dakota and Wiscon. The gasolines affected are Solite with Ethyl, Standard Red Crown and Stanolind.

Subnormal prices will be also advanced in the same area, except southwest Kansas, where changes in subnormal prices were made Dec. 4.

On the same date the company will make adjustments in its normal prices to tank wagon customers and dealers in the lower peninsula of Michigan on motor gasolines, and also in tank wagon prices on kerosine and tractor fuel. Subnormal prices will be advanced to the new normal basis, except that no change will be made in the Detroit metropolitan area on gasolines.

Effective Dec. 15, the company will make relative adjustments in tank wagon prices on furnace oils through the lower peninsula of Michigan.

Previous general price changes on gasoline this year in the Standard of Indiana territory have been: Jan. 17, up 0.5 cent; Sept. 4. cut 0.3 cent; Sept. 9, subnormal service station prices brought to new normal levels established Sept. 4; and Sept. 25, cut 0.3 cent at normal points.

MILWAUKEE, Dec. 4.—The Plankinton Hotel will house the annual convention and equipment show of the Wisconsin Petroleum Association Feb. 23, 24 and 25, according to James S. Harrison, chairman, arrangements committee.

Jury Illegally Drawn

(*Continued from page* 9)

ing all summer, as we did before, we could draw indictments, and maybe better ones, in three weeks," Lewin replied.

An indication of what his plea would be was given by Col. Donovan at the opening of the session, when he asked the permission of the court to introduce "certain pleas" before the arraignment.

"The usual criminal procedure is to have the arraignment and have the defendants plead guilty or not guilty, before introducing other pleas," Judge Stone said.

Col. Donovan cited a Supreme Court ruling that such special pleas may be made when a defendant wishes to question the legality of a grand juror's selection and Judge Stone permitted him to proceed. At this point attorneys for some other oil companies asked and obtained permission to let their clients join in the plea Donovan was about to make.

"This is a plea in abatement (to quash the indictments) for two reasons," Col. Donovan said. "First, the grand jury that found and returned the indictments was not lawful as required by the fifth amendment to the Constitution, which says that no person shall be deprived of property without due process of law. Second, the law requires that the names of all jurors shall be publicly drawn from a box containing the names of at least 300 persons."

Donovan said the federal law, passed in 1879, required that the clerk of the court and the jury commissioner, who shall be of the opposite political party to that dominant in the district, shall alternately place names of prospective jurors one at a time in a box, from which the names of the jurors shall be drawn.

"Louis D. Sumner, jury commissioner for this district, did not take his place with the clerk in putting the names of the grand jurors in a box in June, 1930," Donovan declared. "Herbert C. Hale (present clerk of the Western District of Wisconsin Federal Court) wrote a form letter in 1930 to postmasters in counties of this district, asking them to select names of persons to make up a grand jury list. He got 840 names. On June 9, 1930, without the knowledge of Sumner, or of the judge, he did place these names in the box, not singly, but in handfuls.

"On Oct. 16, 1930, Sumner went to the court and found the names already in the box. Twenty persons on the grand jury that returned these indictments were among those whose names were in the box."

Donovan said that Sumner added 15 or 20 names, and that the jury was then drawn. On April 24, 1934, George C. Flynn was appointed jury commissioner to succeed Sumner, Donovan said. No additional names were added to the jury panel, except that on April 25, 1936, Hale and Flynn each added three names to the jury panel, but the names were not mingled with those already in the box, and from these six, three jurors were drawn, Donovan said.

"The defendants were prejudiced by this method of selection," Col. Donovan declared.

"Let's stop right here," said Judge Stone, interrupting Donovan in the midst of his plea. "In what way were your clients prejudiced?"

"It's a matter of substance. I feel that I don't need to make a specific complaint," Donovan replied.

"Let's take the practical viewpoint," Judge Stone said. I assume that you are not making any charge of corruption. These grand jurymen were all good men and true, weren't they?"

"No, I'm not charging any corruption," said Donovan.

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Removal Hearing Set For N. Y. Defendants

NEW YORK, Dec. 2.—Three New York major oil company executives named in the second conspiracy indictment returned at Madison, Wis., appeared today before U. S. Commissioner Cotter and removal hearings were set for Jan. 7. Bond was set at $2500.

The men who appeared were Edward L. Shea, Tide Water Oil Co., J. W. Carnes, Sinclair Refining Co., and R. G. A. Van der Woude, Shell Union Oil Corp.

Other New York oil men named in the second indictment are expected to appear during the next two weeks and post bond for their appearance at later removal hearings. They are Charles L. Jones and Charles E. Arnott, Socony-Vacuum Oil Co.; Harry D. Frueauff, Cities Service Co.; W. S. S. Rogers and H. W. Dodge, The Texas Corp.

The oil company officials who appeared today were excused from the ordinary procedure of being fingerprinted and photographed on orders from the attorney general's office at Washington, it was said here.

Why We of N.P.N. Like to Work For This Oil Industry of Ours

The telegrams and letters which are quoted in the accompanying columns are entirely voluntary.

By Telegraph

"Your new issue of NATIONAL PETROLEUM NEWS just reached me. How do old men go so modern? Heartiest congratulations and best wishes from a subscriber for over a quarter of a century."

T. Wilbur Thornhill, president, Charleston Oil Co., Charleston, S. C.

—COMMENTS—

By Telegraph

"Just received Dec. 2 issue of NATIONAL PETROLEUM NEWS. Now you have really gone and done it and I want to be one of the first to offer congratulations to you and your staff for offering to industry a noncompetitive trade journal."

Dan Moran, Pres., Continental Oil Co., Ponca City

—COMMENTS—

"The first issue of NATIONAL PETROLEUM NEWS in its new form has just come to my attention, and I hasten to add my favorable comment to the many commendatory messages which I am sure you will receive from your readers and advertisers throughout the industry. Several of the men in our organization's marketing department have today remarked about the greatly improved appearance of the publication and the arrangement of editorial content.

"Our people particularly are impressed by the large volume of spot news which is presented on the first 24 pages of the December 2 issue, and are of the opinion that this will prove to be a highly valuable feature.

"From my own standpoint as a buyer of advertising space I would like to say that few trade journals will compare favorably with the new NATIONAL PETROLEUM NEWS in typography and general make-up. The increased use of illustrations and departmentalizing of the news content of the magazine, along with your method of spreading both editorial matter and advertisements from cover to cover rather than grouping advertisements in heavy sections gives the advertiser an unusually good 'break'.

"You are to be commended for this further evidence of your desire and efforts to render complete and forward looking service to the industry which your publication serves, and I know that my associates in our organization fully concur with me in this sentiment."

M. C. Shipley, Advertising Manager, Mid-Continent Petroleum Corp., Tulsa.

—COMMENTS—

"Since you announced in your issue of a few weeks ago that you would change the style of NATIONAL PETROLEUM NEWS on December 2, I have waited with interest the coming of this issue. It was indeed gratifying to note the improvement in it and we want to take this opportunity to congratulate you on your progressiveness and the service you are rendering to the entire industry.

"As a reader of your publication for many years, and as an independent jobber, it has always been a pleasure to note the unbiased reporting of your news items. If the editors of some of the other publications coming to our desk regularly are really interested in uniting the entire industry for the good of all, I would suggest that they discard the cloak of prejudice and domination so apparent to those who can read between the lines, and adopt a fair and square policy such as yours."

Walter H. Wingrove, Wingrove Oil Co., Sheboygan, Wis.

—COMMENTS—

"The new NATIONAL PETROLEUM NEWS just received and while I have only had the opportunity to hastily scan its pages, I am impressed particularly with the 'News Flash Section.' This feature will be looked forward to and read with much interest by every subscriber, especially the 'Washington News' feature. I like the increased size.

"As an advertiser, this enables

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Comment on New N. P. N.

(*Continued from page* 11)

us to make a more impressive presentation of our advertising message. All in all, it is greatly improved throughout and I hasten to congratulate you on this forward step in the trade journal publication field."

L. B. McCammon, Vice President, Ohio Oil Co., Tulsa.

—COMMENTS—

"I have spent considerable time this morning looking over the first issue of the new NATIONAL PETROLEUM NEWS and I want to compliment you and your entire staff upon your effort, which, it seems to me, is quite a contribution in the way of a much bigger and better oil publication. The increased space does give you an opportunity to print much more of the important news relating to our industry than you have been able to in the past, and I think that the general style of the new magazine is not only more interesting, but a lot easier to read and I sincerely hope that NATIONAL PETROLEUM NEWS will be amply repaid in many ways for the additional expense and effort which you are putting into it."

R. W. McDowell, Vice President, Mid-Continent Petroleum Corp., Tulsa.

—COMMENTS—

"I want to compliment you on the first issue of the new NATIONAL PETROLEUM NEWS.

"I hope that future issues will contain briefly the important news of the industry. There is so much going on in the oil business that one does not have the time to read several different publications to find out what is going on.

"I am sending a subscription for our Texas representatives, and I am sending a subscription for my home copy, where I can enjoy reading the news of the industry in peace and comfort."

C. E. Miller, James B. Berry Sons Co., Chicago.

—COMMENTS—

"The new make-up of NATIONAL PETROLEUM NEWS is, I believe, a distinctly progressive step. Its arrangement into various departments makes for easy and convenient reading and increases its value as a reference library. Your emphasis on the news phases should be appreciated, particularly by those outside the active oil areas, and the technical section in which new developments can be concentrated is of real value."

G. E. Everett Western Petroleum Refiners Assoc., Tulsa.

—COMMENTS—

"From the standpoint of the reader the new N. P. N. leaves little to be desired and you and your editorial staff are to be congratulated on a most constructive move.

"New dress is just as important in magazines as it is in other fields and when it happens to be completely modern, attractive in appearance and efficient design, it is as effective as the Fifth Avenue variety.

"The new technical section will meet with special favor, since its segregated position is convenient and permits "lifting" without the inclusion of extraneous material. Every technical man will appreciate it though, as usual, few may take the trouble to tell you so.

"Again congratulations."

William F. Lowe, secretary Natural Gasoline Association of America, Tulsa.

—COMMENTS—

"I want to congratulate you on the new NATIONAL PETROLEUM NEWS. Its increased value is readily apparent, and, with the new subscription rate, it should be possible to enlist as regular subscribers everyone in the petroleum industry."

A. L. Lommel, president, Bartles-Shepherd Oil Co. Waterloo, Ia.

—COMMENTS—

"Congratulations on the new NATIONAL PETROLEUM NEWS.

"I like particularly the inclusion of last minute news and the placing of market information.

"It is certain that publication of the News in the new form is going to result in more and better readers."

Elwin E. Hadlick, president Northwest Petroleum Assoc., Minneapolis.

—COMMENTS—

"I have just finished a hasty examination of this week's NATIONAL PETROLEUM NEWS and wish to congratulate you on the enlarged magazine. I think the pages of last minute news that you have added greatly improve your already fine publication and the new subscription rate should certainly increase the circulation."

Otto D. Donnell, president, Ohio Oil Co., Findlay, O.

—COMMENTS—

"The most interesting copy of

(*Continued on page* 13)

Rails Fight Nebraska Truckers In First Oral Argument At ICC

N. P. N. News Bureau

WASHINGTON, Dec. 5.—Still jittery about truck competition, railroads continue to seek Interstate Commerce Commission authority to lower rates on petroleum products in various parts of the country.

This week two such authorizations were granted and a third applied for.

New rates on gasoline and kerosine to Charlotte, N. C., were temporarily authorized for rails in Georgia and the Carolinas. Representing reductions of from one to four cents per hundred pounds, without changing intermediate rates, the new schedule is: From Savannah and Port Wentworth, Ga., 24 cents; from Brunswick, Ga., 28 cents, and from Charleston, S. C., 22 cents.

Central of Georgia was authorized to establish a rate of 13 cents per hundred pounds on gasoline and kerosine from Montgomery to Opelika, Ala., via an interstate route, a reduction of 7 cents. The applicant cited water competition as well as that of trucks in asking for the new rate.

Pennsylvania Railroad asked authority to reduce rates on petroleum products from Williamsport, Pa., area to Olean, Hornell, Wellsville, Corning, Elmira and Wayland, N. Y., and Covington, Pa., saying it must do so to meet truck competition. Proposed rates range from 2.5 to 6.5 cents per 100 pounds lower on gasoline and kerosine in tank cars, and from 1.5 to 3 cents lower on other products.

Jury Illegally Drawn

(*Continued from page* 11)

"These were all good men and true."

"Well, let's assume for the moment that your point" regarding the illegal selection of the jurors "is well taken" said the court. "The government would have to go over the same ground as it did last summer, and at great expense. I presume you and your clients want this case disposed of promptly. I just want to be practical."

"There is nothing more practical than strict compliance with the law," Donovan replied pointedly. He explained that, after the Civil war, Confederate veterans were excluded from grand jury service, leading to the legislation on which he based his plea. "It may be all right to be practical, but isn't it better to stick to principles of abstract justice?" he said.

Judge Stone returned again and again to his queries on just how the rights of Donovan's clients had been prejudiced by the allegedly illegal jury selection. Each time Donovan replied that the "prejudice is in the fact of the illegal method of selection." He also repeated his charge that in April, 1934, three jurors were chosen from only six names submitted, although there were at the time the names of 300 prospective jurors in the box.

"There was no necessity in law or in fact for handpicking these jurors," Donovan said. "The prejudice consists in this: that the statutes guarantee all persons that any grand jury inquiring into their conduct shall be chosen by lot."

Donovan concluded by saying that it was up to the government counsel to demur to his brief or to answer it and, in case it was answered, to go to trial on the question of the grand jury.

"The government's counsel is confident at this time that there

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Trailer City Planned For 1937 Exposition

CLEVELAND, Dec. 7.—W. T. Holliday, president of the Standard Oil Co. of Ohio, has been elected president of the Great Lakes Exposition for 1937.

The exposition will open May 29 and run for 101 days, through Labor Day, Sept. 6. The 1936 exposition brought approximately 2,500,000 visitors to Cleveland and put $30,000,000 into circulation here, it is estimated.

Next year's show, as was last summer's, will be on the lake front. One of the new features planned is a "trailer city" in the immediate vicinity of the Exposition grounds, to accommodate trailer travelers.

The exposition will be a new one, not merely a duplication of the 1936 event. It will be a dramatization of the industrial and agricultural resources of the Great Lakes area and of the nation.

Jury Illegally Drawn

(*Continued from page* 12)

is no merit or substance in the defendant's contention," Lewin replied. "It is evident that the jury commissioner took part in a very substantial way in the choosing of the jurors. Apparently, however, there was some technical infraction."

Lewin said the government would need more time in which to study Donovan's brief, before replying to it.

When Donovan had explained that the method of putting names in the jury box developed after the Civil war when Confederate veterans were barred from jury duty by carpet baggers, Lewin said that carpet bag days were over. Donovan replied that this remark should be addressed to Congress, not to the court.

Donovan filed pleas of abatement on the first indictment for these companies: Standard Oil Co. (Indiana), Socony-Vacuum Oil Co. Inc., Wadhams Oil Co., Cities Service Co., Cities Service Export Oil Co., Empire Oil and Refining Co., Louisiana Oil Refining Corp., Continental Oil Co., Pure Oil Co., Shell Petroleum Corp., Sinclair Refining Co., The Texas Co., Phillips Petroleum Co., Skelly Oil Co., Barnsdall Refining Corp., Deep Rock Oil Corp., and the three Globe Oil & Refining companies.

On the second indictment Donovan represented Socony, Wadhams, Indiana Standard, Cities Service, Empire, Continental, Pure, Shell, Sinclair, Texas, Phillips, Ohio Oil Co., Skelly, Barnsdall, National Refining Co., Deep Rock, and three Globe companies. Also for D. W. Harris and John A. Welch, of Louisiana Oil; L. T. Cramer, Edward Karstedt, Harry J. Kennedy and Dan Moran, of Continental; Frank Phillips, A. M. Hughes and H. E. Koopman of Phillips, and W. G. Skelly and James Nagle of Skelly.

Similar pleas were filed for the Journal of Commerce by attorneys Sam T. Lawton and Lawrence E. Hart, Gulf Oil Corp. and Gulf Refining Co. by Archie D. Gray, for NATIONAL PETROLEUM NEWS by Gerald Pilliod.

Counsel Pilliod asked and received permission to withdraw Warren C. Platt's not guilty plea entered in Cleveland. The court granted permission for the Journal of Commerce to withdraw the motion to quash the indictment.

Attorneys for the Tidewater Oil Co. asked dismissal of the indictments on the ground that the company had been dissolved Sept. 4, 1936. A similar plea was made on behalf of the Marathon Oil Co., by A. M. Gee, counsel.

"This raises a very interesting question," Judge Stone said. "Suppose all the defendants dissolved their companies on the day before coming into court to answer to an indictment?"

Charles Garside, New York, attorney for Tidewater, protested that the dissolution had been planned for a year before it took place. Judge Stone did not rule on the motions regarding the two companies.

When J. C. Denton, counsel for the Mid-Continent Petroleum Corp., and indicted Mid-Continent officials brought up a previous plea questioning the jurisdiction of this federal court, Judge Stone overruled the plea and the Mid-Continent defendants joined the abatement pleas.

Sub-zero weather blanketed Madison over the week-end heralding the beginning of winter as today's proceedings started heralded the beginning of court action on the first indictment returned August 3, and the second returned Nov. 6, after the federal grand jury had been investigating oil marketing since May 4. The grand jury was extended Dec. 1 to complete unfinished business and is now in session here.

The Madison hotel business boomed today from the oil company legal talent patronage. Only a few Wisconsin jobbers attended court.

The court room began filling shortly before two o'clock but proceedings were postponed until three.

Gasoline Pump Trade Rules Expected

By Teletype
N. P. N. News Bureau

WASHINGTON, Dec. 8.—Fair trade practice rules for gasoline pump manufacturers may come out of the Federal Trade Commission before long. Judge McCorkle, chief of the trade practice division of the Commission, expects to recommend soon that it tentatively approve such rules. Then interested parties would be given 15 days in which to file objections. Representatives of pump manufacturers have conferred several times with commission officials. No general conference will be held, it is understood.

Regarding the oil marketing code now pending at the FTC, McCorkle said he expects several more conferences with the industry's representatives will be necessary before he submits his recommendations to the commission.

Comment on New N. P. N.

(*Continued from page* 12)

the NATIONAL PETROLEUM NEWS that I have ever seen has just been delivered to my desk today.

"I feel that you should be very highly complimented by the trade in general for the improvement that you have made in your publication. The first part of the paper, which you are devoting to news items, seems to be to really carry more actual interesting news than we have been able to get from a combination of all the publications heretofore, and the new subscription price should serve to greatly enlarge your circulation."

T. R. Vaughn
T. R. Vaughn Oils, Chicago.

—COMMENTS—

"The new NATIONAL PETROLEUM NEWS has arrived, and I want to compliment you upon its format.

"I think it especially fortunate that you have chosen regular newsprint paper for your Hot Spot News, and apparently you have improved somewhat on the other paper in the book. I think the size is good, because it will still permit us to use 7" x 10" plates, and get a better display.

"As the mouth-piece of the oil industry, NATIONAL PETROLEUM NEWS will always take first place in the eyes of wise advertisers, I am sure."

C. E. McKinney
advertising manager,
Erie Meter Systems, Inc.
Erie, Pa.

—COMMENTS—

"I have just seen the new NATIONAL PETROLEUM NEWS, and I should like to offer my congratulations and best wishes for your success with it."

H. A. Inness Brown, publisher,
The Gasoline Retailer,
New York

—COMMENTS—

"I have just received the first issue of the NATIONAL PETROLEUM NEWS in its new format and hasten to congratulate you on the excellent job you have done in all departments of the publication.

"Everyone who has had a hand in the new N. P. N. deserves praise."

H. Rothermel,
sales Promotional manager,
Dayton Pump and Manufacturing Co., Dayton, O.

—COMMENTS—

"Allow me to congratulate you on the new NATIONAL PETROLEUM NEWS. I have just received my first copy, and your publication seems to be improved in every way."

Harry D. Alexander
Southern Oil Stores, Inc.
Jacksonville, Fla.

—COMMENTS—

"Attached is my subscription to the NATIONAL PETROLEUM NEWS, together with a postal money order for $2, which I understand is the new low rate for the coming year.

"I would appreciate it very much if you would send me three additional subscription blanks, as there are several of our petroleum sales representatives to whom I would like to have you send the NATIONAL PETROLEUM NEWS."

C. F. Campbell, assist. manager,
Petroleum Sales Dept.
The B. F. Goodrich Co.,
Akron, O.

—COMMENTS—

"These various changes are quite interesting to us of the Transamerican Petroleum Corp., and all of us are agreed that it is another step forward in the policy of your paper which is recognized by us being the authority on petroleum markets and news."

M. G. McGrath
Transamerican Petroleum Corp.,
Chicago

—COMMENTS—

"The new N.P.N. is as good as you said it would be. Congratulations on taking another long step to keep your paper well in the lead of the nation's business journals."

J. E. Mooorhead,
executive secretary,
Pennsylvania Grade Crude Oil Assoc., Oil City, Pa.

—COMMENTS—

"I like the new magazine. The type is more easily read and the general makeup of your advertising display is a little more pronounced than heretofore. It always has been and no doubt always will be the recognized official oil publication, and as long as I continue to be interested in oil NATIONAL PETROLEUM NEWS will keep coming to my home."

Will H. Trimble, president,
Trimble Oil Corp., Indianapolis

—COMMENTS—

"I wish to compliment you on the new style makeup of NATIONAL PETROLEUM NEWS. I have always considered this publication as one that impartially carried all the news. Concentration of the news in the front of the publication is a great time saver."

Paul E. Hadlick, secretary,
National Oil Marketers Assoc.,
Washington

National Petroleum News

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Orchids to Roeser et al

Aggressive, fighting associations that represent a definite part of an industry are a most desirable adjunct to any industry. So today we hand flowers, while its members and officers are very much alive, to the Independent Petroleum Association of America.

That organization celebrated its seventh birthday at Oklahoma City the other week with a meeting that was not only big from standpoint of attendance but excellent because of the papers that were presented, and particularly, by the thought that was aroused.

Charles F. Roeser, Texas oil producer, who is president, best summed up the thought of the industry of the present, to which his association has so well contributed, in the following paragraph from his annual address:

"I do not believe that ever in the history of the petroleum industry has there been a time when the domestic industry was doing more to set its house in order, to properly conserve the great natural resource of which we are the custodian, or to make such economies as are possible, and then to pass on to the ultimate consumer his share of the advantages gained. . . ."

"That balance between supply and demand upon which we insisted has been largely realized. The reduction of oil imports to a proper ratio with the amount required for domestic consumption and our export trade has been approached, although not yet fully in force. We have disposed, without harm to our price structure (crude price), of our excess storage. Our statistical position is the best we have known in many years. We have received some price increases. We are in a position to expect even more price increases. We are eliminating wastes which were costly. We are demonstrating that we are learning our lesson that volume should not be our goal, but that an adequate price should be the test rather than the amount of production."

To which the industry gives cheers.

To you President Roeser, to your well known predecessor the organizer of the association, Wirt Franklin, and to your able officers and their efforts, we know the industry extends thanks. We cannot always agree with what you say or undertake to do, nor do others in the industry. But such a strong, virile, thinking organization as yours is a distinctive and honorable asset to this industry. The industry would progress further and faster if other groups in oil were similarly so well represented.

So here are our flowers, Mr. President, just plain every day substantial and lasting garden posies, but some day, when we get the expense of this unjust and unlawful government persecution off our back, we will make it orchids, if you will.

Sauce for The Gander Now

When you read much these days in the public press about the law for collective bargaining and the responsibility of business to indulge therein in the exact manner, and no other, decided by the labor unions, stop and consider how the newspaper publishers and editors themselves are handling "collective bargaining."

For years, of course the mechanical departments of the newspapers have been sewed up tight as a drum by the labor unions. There isn't any such thing really as collective bargaining there because you have to join a particular labor union and do just what it says—or as little as it orders—or you don't get a job at all. If you don't like that labor union you lose your job. It's join the "trust" or get out.

Amid all the shouting for collective bargaining here the last few years, some of the more radical members of various reportorial staffs took up the idea and organized The American Newspaper Guild. After some polite words, the Guild started making demands and pulling strikes on the editors. That gave an entirely different complexion to this collective bargaining business. It brought the subject home most forcefully to the editors. One feels that their demands that business generally accept "collective bargaining" as specified by the labor unions, have been tempered somewhat since this chicken came home to roost on the editorial typewriter.

The maneuverings of the editors and publishers of newspapers have been interesting to watch. We must grant that a union of newswriters is a much different proposition practically than a union of monkey wrench jerkers, because the news writers can sabatoge their product without anyone catching them at it and thus poison the vast stream of information to the public, a procedure which would be productive of the most dire results to the general public and a free government. In other words, this at once raises the issue of the freedom of the press, and with all its evils and errors, that is fundamental for freedom in any country, for once that is gone there also will be gone undoubtedly all other means of freedom of speech.

But no matter how important it is that the country's editors and news writers be kept out of the domination of labor unions or any other groups, one of industry cannot help but chortle a bit as he watches the squirmings of the editors to whom, up to the moment of their Newspaper Guild demands, the problem of industry granting collective bargaining to labor had been simple, just so simple that all industry had to do was to say "yes" to every fool demand of every labor leader.

There have been some nasty strikes as a result of the demands in the name of "collective bargaining" of the news writers. Hearst's Portland, Ore. paper has been shut down for months now because of such a strike. Other labor unions have backed up the demands of the newswriters and have boycotted the offending newspapers and supplied strong arm "pickets." Most of these demands for "collective bargaining" would just turn the editorial policies of the newspapers over to the labor unions with the publisher only privileged to pay the losses.

Now comes the able editor of the Cleveland Press, whose ability and straight thinking we admire tremendously, even though we cannot by any means always agree with him, and cancels a collective bargaining agreement he has had

the past year with some of his editorial staff. Only maybe this is not an agreement, as he calls it "an accord." But it was put in writing in a public statement as a result of long negotiations. The Press, be it known, is the originator and even today the backbone of the Scripps-Howard newspapers, all of whom treated the Guild in much the same fashion, and all have been loudly demanding of industry that it indulge in collective bargaining pretty much as outlined by the labor unions and the Roosevelt administration.

Editor Selzer gives no reasons for cancelling this "accord" that came from "collective bargaining" or something that the Guild thought resembled it. Presumably the Guild just got too awful and extreme in its activities over the country but still it was no worse than most labor unions.

But over the horizon, with the canceling of this guild "accord" comes a new organization, to be known as the "American Press Society." It rather looks as if that is going to be the honest-to-God, clean cut, high idealed outfit for the news writers to join. Its constitution has been published but we haven't seen anything yet about who wrote it, nor have we seen the list of officers, if it has any.

We don't want to be snooty nor do we want to see the newspaper publishers in any unnecessary trouble but we can't help but raise the question that they have so frequently and oftentimes unfairly raised regarding various organizations of industry's employes. That question is, is this American Press Society one of these "kept" affairs that the top hats in the front office have put their approval on?

Or shouldn't we look into that closet?

Right to Fix Retail Price Of Branded Products Upheld

N. P. N. News Bureau
WASHINGTON, Dec. 6

Blazing the way for state legislation to improve standards of competition in merchandising, the U. S. Supreme Court today unanimously upheld the laws of Illinois and California authorizing manufacturers or distributors to fix the resale price of their branded products.

The court puts forward the new principle that the owner of a trade-mark or brand can specify conditions under which the branded product may be resold, provided there is legislative authority for so doing.

Projecting this further, the Court upheld provisions of the state laws making it unfair competition for anyone, even though he has no contract with the brand name owner, to sell the branded product at less than the price stipulated in other outstanding contracts.

In other words, if the owner of the brand has even one contract out, which specifies the resale price of his branded product, all resellers knowing of such a contract must abide by that price.

This decision is of great importance to the oil marketer, for it points the way for him to protect his brand from price-cutting, in the states having fair trade practice laws.

It means that the refiner or jobber owning the brand name can specify at what price his gasoline, oils and greases must be sold at wholesale or retail—and make it stick.

Thirteen states now have such fair trade practice laws, authorizing resale price maintenance in intrastate commerce. With 44 state legislatures meeting early in 1937, there wil be a drive by Independent merchants in many lines to spread such legislation on the statute books of many other states.

So far, such state laws do not apply to interstate sales. But several bills were introduced in Congress last session which would subject interstate sales to state fair trade practice acts. Undoubtedly, similar bills will be introduced and pressed with renewed vigor when Congress meets in January.

As regards oil marketing—the Supreme Court's decision not only gives the refiner or jobber (in states having such laws) the right to protect his brand from price-cutting retailers but it also gives branded dealers a weapon to combat secret discounts within their own ranks, where the supplier has set a resale price.

For example, any dealer selling X Company's branded gasoline could sue another X Company dealer who was not maintaining the retail price specified by X Company. Laws such as in California and Illinois give the injured party a right to sue the price-cutter.

The Supreme Court rendered its decision first on the Illinois law in the suit brought by Seagram Distillers Corp. to enjoin Old Dearborn Distributing Co., a retail liquor dealer, from allegedly selling at less than prices stipulated in contracts with other retailers.

With the Illinois law as a precedent, the court immediately upheld the California fair trade practice law. In this latter case, The Pep Boys, Manny, Moe & Jack of California were charged with cutting the price of Pyroil lubricants. Pyroil had no contract with the Pep Boys, it is said.

"We are here dealing," said the Supreme Court in the Illinois decision, "not with a commodity alone, but with a commodity plus the brand or trade-mark which it bears as evidence of its origin and of quality of the commodity for which the brand or trade-mark stands. Appellants (retailers) own the commodity; they do not own the mark or good will that the mark symbolizes.

"And good will is property in a very real sense, injury to which, like injury to any other species of property, is a proper subject for legislation. Good will is a valuable contributing aid to business—sometimes the most valuable contributing asset of the producer or distributor of commodities. And distinctive trademarks, labels and brands, are legitimate aids to the creation or enlargement of such good will," the court added.

The court went on to say; "There is a great body of fact and opinion tending to show that price cutting by retail dealers is not only injurious to the good will and business of the producer and distributor of identified goods, but injurious to the general public as well."

The decision emphasizes that it is the brand name which is at stake. Remove the brand name, and the reseller can sell the commodity at any price he likes, provided he doesn't use the good will of the manufacturer as an aid to that end.

It follows that a manufacturer cannot stipulate the resale price of his unbranded merchandise. Resellers may also sell under their own private brands at any price they want.

The court admits it has in the

(*Continued on page* 16)

13 States Have Fair Trade Practice Laws

By Teletype

WASHINGTON, Dec. 8.—Thirteen states have resale price maintenance laws such as the Supreme Court upheld Dec. 7. They are: California, Illinois, Iowa, Maryland, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Virginia, Washington, and Wisconsin.

Pass the Cigars, $30,314,428 Is the WPA Oil Products Bill

N. P. N. News Bureau

WASHINGTON, Dec. 3—Petroleum products make up more than 10 per cent of the materials and supplies purchased for use on WPA projects.

Their principal use is as paving and road surfacing mixtures — bituminous surfaces, oiled roads, and so on. Materials purchased for these purposes through Oct. 31 this year cost $24,575,706.

The WPA projects, however, have demonstrated the scores of other uses to which petroleum may be put for example, roofing, waterproofing masonry, treatment of wood and metal forms for concrete, treatment of floors, waterproofing timber, construction of airport runways and a dozen others. Petroleum products for these uses, up to October 31, cost $5,738,722.

The total of these two figures, $30,314,428, is slightly above 10 per cent of the $281,745,433 the WPA had spent for materials, supplies and equipment for use through Oct. 31.

Because of the fact WPA regulations provide for purchase of all materials in the communities where the projects are located, this expenditure has been spread among oil companies throughout the country.

WPA materials are purchased through the Procurement Division of the Treasury Department on competitive bids.

No other single classification of materials except lumber and lumber products has accounted for a larger portion of the total WPA expenditures for material and supplies. The lumber bill amounted to $30,588,625. Cement was next, after petroleum products, costing $25,402,536.

Right to Fix

(*Continued from page* 15)

past voided similar price-maintenance arrangements as restraints on competition, but points out that legislative authority has been lacking up to now. The court contends, however, that its earlier decisions pointed the way for such permissive legislation.

The decision started speculation as to how far a manufacturer or distributor can go in specifying conditions of sale to dealers selling his branded merchandise.

If it is legal under such laws to fix the resale price, how many other conditions can be specified? Could a supplying company require dealers selling its branded gasoline or motor oils to maintain certain standards—say the cleanliness of their rest rooms and so on.

There is some question as to how far oil companies can go which have adopted the "Iowa Plan" of marketing through leased stations. Perhaps it will be the Independent oil jobber with his own brand and the manufacturers of premium oils and greases who will make the most of the opportunities now offered.

Neither the California or Illinois laws permit agreements between manufacturers or wholesalers or retailers to maintain prices. Essence of the laws is that the brand name owner can specify the resale price of his branded products and require all resellers to abide by it. Resellers invoking the law really make use of the brand name owner's rights. Competition between different brands and between manufacturers or wholesalers or distributors is preserved.

Refinery Planned For Mexico City

MEXICO CITY, Dec. 1.—A marketing challenge to foreign petroleum companies in the Federal District, Mexico's largest consumption center, is being made by the Compania de Petroleos de Mexico, S. A. (Petromex), the semi-official oil firm.

This enterprise, which began operations Feb. 1, 1935, has asked the federal government for a concession, which it is believed certain to receive, to build and operate a natural gas pipe line from Petromex's zone in the rich Poza Rica fields, in northern Vera Cruz state, to this city. The line will be 240 kilometers long, 30 kilometers longer than the oil pipe line of the Mexican Eagle Oil Co. (Royal Dutch-Shell group) from Palma Sola, Vera Cruz, to its local refinery. Much American equipment is to be used for the gas line, which will cost several million dollars. Details of the work are now being drawn up.

Petromex is to cater to local and adjoining markets with gas the line transports. The line will be in conjunction with a cracking plant of 2000-barrels daily capacity which Petromex is to start building next spring on a 70-acre tract it owns near here. This plant will produce high octane gasoline.

Ruling Seen

Telegraph Bulletin
N. P. N. News Bureau
LOS ANGELES, Dec. 8

It is believed here that the ruling of the U. S. Supreme Court in Washington Dec. 7 upholding the California fair trade practice act will permit oil companies to enforce maintenance of designated prices and thus eliminate cutting under the canopy, which has been a frequent source of disrupted retail markets here.

Cracking Patent Decision Upheld by Court of Appeals

N. P. N. News Bureau

CLEVELAND, Dec. 7. — The decree of the U. S. District Court of New Mexico, clearing Champlin Refining Co. of charges of infringement of three cracking patents licensed by Gasoline Products Co. was upheld in the U. S. Circuit Court of Appeals for the Tenth District in an opinion handed down Nov. 18, 1936. Orie L. Phillips of Denver, circuit judge, delivered the opinion.

The three patents originally in suit in this action were: Rosenbaum, U. S. P. No. 1,324,983, Dec. 16, 1919; Cross, U. S. P. No. 1.734,079, Nov. 5, 1929, claims 4 and 5; and Howard and Loomis, U. S. P. No. 1,-869,337, July 26, 1932.

In the appeal, taken by Gasoline Products Co., the Rosenbaum patent was eliminated from the action, and the circuit court opinion did not refer, therefore, to that patent, which is therefore invalidated in all claims, since all claims were in suit and the patent was invalidated by the district court.

The original district court opinion held the Cross patent also invalid and not infringed, as was that of Rosenbaum. It held the Howard and Loomis patent not infringed by Champlin's operations of a Winkler-Koch type cracking unit.

The circuit court's opinion goes further, and holds the Cross patent claims in the suit (Claims 4 and 5) are void for want of novelty, and of course therefore invalid. It holds the claims fully anticipated by the prior art, patents on which are cited. Three of these cited patents are Underhill, No. 235,659; Wright, No. 479,869; and Schneider, No. 1,246,332.

Reviewing the findings and claims in the Cross patent, the court pointed out the difference in the manner of heating in this patent and in Champlin's operations. From these findings of fact, the court concludes; "Every element in a combination is conclusively presumed to be material. The omission of one element of a combination claim avoids infringement of that claim, whether or not the element was essential to the combination.

"Aside from the details of the arrangement of the tubes in the furnace and the specific way in which the oil flows through the tubes, in respect of which the device employed by Champlin is substantially different from the claims in suit, such claims are fully anticipated by the prior art.

"Because Champlin Co. omits elements of the claims, we hold it does not infringe," the court said.

This finding is of major importance in petroleum refining patent annals, showing clearly that omission of even one element in a combination claim clears the operator of infringement on that claim. In other words, all elements being considered essential and material, all must be employed by another party before such a claim is infringed, no matter whether or not any omitted element is useful or necessary to the operation's results.

The circuit court opinion holds that the Howard and Loomis patent must be limited to a "liquid-phase" type of operation, and that the Winkler-Koch type of operation used by Champlin is a liquid-vapor-phase operation, **not** included in Howard-Loomis claims. Therefore Champlin uses a substantially different process from that covered by Howard-Loomis, and does not infringe the latter.

"We hold further," says the opinion, "that if the claims in suit were construed broadly enough to embrace the process employed by Champlin Co., they would be void for anticipation, Therefore, the Howard-Loomis patent cannot cover a liquid-vapor-phase operation, which technologists generally concede. This point has been brought out in other suits (Universal-Root, for example), since it constitutes most cracking operations now employed successfully by refiners.

The new opinion reiterates the conclusions reached by the district court that the Howard-Loomis patent applies primarily to a viscosity-breaking operation rather than to cracking where the primary object is the production of a maximum yield of gasoline. The Howard-Loomis patent does not cover recycling, which Champlin employs, and which the opinion concludes is essential to efficient cracking.

The Champlin operation uses a short time factor, it is pointed out, by increasing the temperature and decreasing pressure during the entire operation, thus reducing the time factor and obtaining cracking in both liquid and vapor phases. The Howard-Loomis claims cover a "once-through" operation, reducing the heating in the second zone, increasing the time factor and maintaining pressure to hold the oil in the liquid phase. The Winkler-Koch type operation (Champlin's), produces gasoline possessing vapor-phase properties the opinion concludes, instead of the liquid-phase type of product properties accredited to the Howard-Loomis operation.

Also of particular interest is the information disclosed. that, during interference proceedings prior to the issuance of the Howard-Loomis patent, the once-through limitation of the latter patent's claims was inserted to avoid the claims of the Dubbs patent.

Gasoline Products' counsel therefore contended that this limitation should be read in the light of the Dubbs patent, and that Champlin does not use a recycling operation similar to the Dubbs method. The findings referred to above dispose of this contention, which the court did not accept, indicating that Champlin does use a process in the manner of the Dubbs patent.

Offer to Buy Warner Quinlan Stations

By Teletype
N. P. N. News Bureau

NEW YORK, Dec. 8.—The Warner-Quinlan Co. bankruptcy hearings were deferred until Dec. 10 by Federal Judge Murray Hulbert, in order to give him time to examine a draft of the Gulf Oil Co.'s plan for the purchase of the Warner-Quinlan stations, which was presented at Monday's hearing.

Gulf had offered $4,125,000 for the station properties. The offer was supposed to have expired Dec. 7, but was extended until Dec. 16. The Cities Service Co. has made an offer of $4,175,000 for the stations.

Oil Not to Be Represented At Conference of Industries

N. P. N. News Bureau

WASHINGTON, Dec. 7.—The petroleum industry's role in the conference of industry and labor here this week, at which a legislative program reviving the principles of the NRA probably will be drafted, is expected to be as small as the "bit" it played in last year's meeting of the "Council for Industrial Progress."

Axtell J. Byles, president, has declined, on behalf of the American Petroleum Institute, the invitation extended by Maj. George L. Berry, co-ordinator for industrial cooperation, who called the conference for Dec. 10 and 11.

So far as could be learned no other association within the industry will be represented. The only other invited was the Independent Petroleum Association of America, but no acceptance from it has been received up to date.

Although no formal acceptance has been received from the oil workers' union, council officials are certain H. L. Fremming, president, will be here. He is a member of several of the council's subcommittees.

Only one member of the industry has accepted so far as is known. He is Walter A. Jones, Pittsburgh, a director of the Plymouth Oil Co. (a Benedum-Trees subsidiary), who was among the few representatives of the industry attending last December's meeting.

A Different Setting

Co-ordinator Berry has sought to give the impression that his forthcoming conference has the complete endorsement of President Roosevelt. But some observers are skeptical. Mindful of last year's debacle, the President would be inclined, they believe, to go slow in giving blanket-approval in advance to whatever action the conference takes.

However, others think that Berry's program has just enough markings of a trial balloon to bear watching.

Further indication the conference is to offer the administration a chance to test public reaction to proposed legislation broadening federal power to regulate industry was given in Berry's announcement of the speakers scheduled to address the conference.

These include Senator Burton K. Wheeler, Montana Democrat; Representative Say Rayburn, Texas Democrat and John Dickison, Assistant Attorney General, in charge of the anti-trust division.

Wheeler and Rayburn are, respectively, chairmen of the Senate and House Interstate Commerce committees, and both favor enlargement of federal regulatory powers over trade practices and working conditions. Dickison is a critic of the supreme court's interpretation of interstate commerce.

At a press conference last week Berry proposed that the coming conference should write a new definition of interstate commerce for "guidance" of the U. S. Supreme Court in proposed new legislation for in-

(*Continued on page* 18)

Washington from the Crown Block

By A. M. PETTY, N. P. N. Washington News Bureau

President Roosevelt's future actions may speak louder than his friendly words at Buenos Aires. He sincerely desires to promote trade with South America. Among the tariff barriers in the way are the excise taxes on oil imported into the U. S.

Bait for Trade

A free trader from 'way back, Secretary of State Hull is even more enthusiastic for South American goodwill. Because of this, he opposed—and probably will again—the Disney bill limiting oil imports and extending the oil "tariff" due to expire in June. Meanwhile, another weapon is at hand.

As bait for reciprocal trade agreements with South American countries (Venezuela, for instance), Hull might offer exemption from the oil "tariff" of 21 cents a barrel. Similar excise taxes on lumber imports were cut in half in the Canadian trade agreement.

Railroads Oblige

Some figures in Ex-Transportation Co-ordinator Eastman's report this week, which formed the basis of newspaper stories about alleged long hours of truck drivers, were collected and supplied by the railroads.

Uncorking Bottle

Foes of federal oil control should pray for defeat of Sam Rayburn, Texas, in his fight for election as majority leader of the House of Representatives.

Victory for Rayburn means increased prestige and gaining of the next-to-last rung to the speakership, now held by the ailing John Bankhead, Alabama. But it will cost Rayburn his chairmanship of the House Interstate Commerce Committee which handles most oil bills.

Rayburn has been an unyielding foe of federal oil control. Even in the face of virtual demands from the White House, he has bottled up various oil bills in his committee.

Alky Gas Friend

Rayburn's chairmanship would go to Clarence F. Lea, California, a loyal and sincere but obliging supporter of President Roosevelt. Last session Lea sponsored bills to regulate interstate transportation of natural gas and to promote the use of alcohol-blends as motor fuel.

Committee chairmen can be almost as influential in pushing bills on to the House floor as in battling them up.

Principal opponent of Rayburn for the House leadership is John J. O'Connor, New York, chairman of the omnipotent rules committee. O'Connor's committee decides what bills the House will take up. Beaten by Rayburn, the rules chairman will not be in a mood to block consideration of oil bills the Texan doesn't like.

Regulate Gas

A group of city mayors, including the mayor of Detroit, are pressing for federal regulation of natural gas pipelines. They are relying on Federal Trade Commission reports as ammunition.

The FTC was disappointed last year; it may not again risk recommending natural gas legislation. When the Lea gas bill was introduced, it named the Federal Power Commission as the regulatory agency. But the FTC has the Robinson-Patman Law as consolation.

500 a Day

Plans are nearly complete at the Interstate Commerce Commission for handling at the rate of 500 *a day the "grandfather" applications under the Motor Carrier act—those truckers operating prior to July* 1, 1935. *But even at that it will require six months to clean up applications filed by* 85,000 *truckers.*

Common Carrier?

The ICC is considering a definition of "private carrier" which would make "common carriers" out of some oil marketers and subject them to the Motor Carrier law.

For instance, a jobber delivers from his Illinois bulk plant to independent retailers across the state line in Indiana. If he charges one dealer a higher price so that the differential might be construed as compensation for a longer haul, then the ICC, under this proposed definition, might hold the jobber was a "common carrier operating in interstate commerce."

If the jobber delivers ONLY to his own stations, then he would not come under the proposed definition. Of course, if he operates entirely within a single state—intrastate commerce—he would be exempt.

R-P Law Solved?

The Federal Trade Commission is looking at the proposed United States Tire Dealer's Mutual Co., which at first glance seems to answer the requirements of the Robinson-Patman law.

Effective Jan. 1, dealers handling U. S. Rubber Co. tires will buy from the mutual company. The mutual will buy from the tire manufacturer in large quantities, obtaining the same prices allowed mail-order houses, private-brand resellers and other large purchasers. Profits of the mutual will be distributed among the dealers.

The Robinson-Patman law specifically permits payment of patronage dividends by co-operative buying and selling organizations to their members in proportion to their purchases or sales.

Oil Is Not Represented

(*Continued from page* 17)
dustrial control.

Such a "definition" would aim at giving Congress powers to enact legislation similar to the old NIRA.

A Near-Riot

Last year's meeting ended in a near-riot, when co-ordinator Berry refused to allow John W. O'Leary, former president of the U. S. Chamber of Commerce and a prominent delegate, to speak. Berry attempted to adjourn the general meeting into group meetings as soon as he had made his opening speech.

A. P. Haake of Chicago, representing furniture manufacturers, vigorously protested. He urged election of O'Leary as permanent chairman of the conference. Berry became nettled, charging that Haake had been sent for the express purpose of "dynamiting" the meeting.

"Liar" was hurled back and forth a couple of times, and the meeting became a bedlam, with labor delegates booing. Berry insisted the session was adjourned, however, and the hall finally cleared. The group meetings, held later in the day, also adjourned without action.

A different story is expected this year, and, while Berry has not yet said exactly what is to be taken up, it is generally believed he will seek endorsement by the industrial and labor leaders of a legislative program already at least partially drawn up.

Auto Makers Decline

Another of America's largest industries which will be virtually without a part in the conference is the automobile manufacturing group, which openly declined the invitation in a letter from the Automobile Manufacturers' Association which warned that new legislation might "upset the present upward trend of business in the industry."

Similar coolness has been seen in the actions of the American Iron and Steel Institute, and the Cotton Textile Institute, as well as anthracite coal operators.

In declining to appoint representatives of the American Petroleum Institute to attend the meeting, President Byles said he felt the institute did not have the authority to represent such a far flung and widely scattered industry in such a matter.

Rails Hound ICC For Lower Rates To Meet Truckers

N. P. N. News Bureau

WASHINGTON, Dec. 3.—Contending that the tank truck is a "hazard" to safety of the railroads as well as automobiles, rail lawyers urged the Interstate Commerce Commission to go slow in considering oil truckers' applications under the Motor Carrier Law.

The safety record of tank trucks was defended by C. W. Sutherland, Lincoln, former secretary of the Nebraska Independent Oil Men's Association, representing the five truckers who were under fire by the railroads. It was the first oral argument held by the ICC on an oil trucking case.

Applicants are McGill Oil Co., Garland, Nebr.; J. W. House, Silver Creek, Nebr.; E. L. Peters, Mankato, Kans.; C. W. Fleek, Spalding, Nebr.; and Jacob Neiderhaus, Lincoln, Nebr.

The rail lawyers asked the commission to reverse the Nebraska-Kansas motor carrier board which has approved the truckers' applications to haul gasoline from Kansas refineries.

They said truck movement of gasoline has reached the point where 3200 loaded trucks passed through Chester, Nebr., in one month, which is at the rate of one every 15 minutes for 30 days.

The rail lawyers asked the ICC not to consider applications from truckers filed after July 1, 1935, until prior rights of "grandfather" truckers have been decided. This prompted Commissioner Eastman, presiding, to ask smilingly:

"Who are you representing—the railroad or these 'grandfather' truckers?"

E. M. Martin, Burlington railroad lawyer, charged that the commission's joint boards are "too sympathetic" with independent truckers. He said the courts might void the motor carrier law, if the ICC persists in entering orders without basic facts supporting its findings.

Eastman accepted the young lawyer's "lecture" with good humor, remarking:

"You want to protect the law from falling down in the courts. But if we are too bureaucratic Congress might knock out the law."

Sutherland, for the truckers, said there are now 500 trucks transporting gasoline from Kansas refineries into Nebraska. To show the need for such service, he offered to file with the commission 8000 contracts between truckers and Nebraska dealers and jobbers.

He ridiculed the statement that the railroads will be called upon to pay higher taxes because of increased road maintenance costs. Much of the revenue now raised by gasoline taxes doesn't go for roads, he pointed out. Indeed, the latest one-cent increase in the Nebraska gasoline tax is going entirely to the old-age pension fund, he said.

The ICC took the case under advisement.

Seek to Unionize Contract Trucker

N. P. N. News Bureau

LOS ANGELES, Dec. 4.—Rumors current for the past several months, to the effect that concerted efforts would be initiated immediately following the Nov. 3 election to unionize southern California industries, developed into reality the past week.

The International Association of Teamsters, Chauffeurs, Stablemen, and Helpers of America launched a campaign Nov. 30 to unionize some 5000 truck drivers in southern California.

All trucks immediately affected by this move are "for-hire" units traveling to and from refinery and harbor areas. Privately owned trucks were not involved in the current action. Officials of trucking companies estimated approximately 50 per cent of the drivers were loosely unionized. That is, they held cards but were somewhat behind in payment of dues.

A threatened blockade of trucking vehicles by a motorized squadron of union members was prevented by prompt action on the part of Los Angeles and Long Beach police, deputy sheriffs, and state highway patrolmen. All principal intersections were guarded by radio police cars and traffic was kept moving.

Only a few, if any, trucks were actually stopped. The procedure was to talk to the drivers while the truck was being loaded or unloaded. It was indicated the next move to solicit union members would be in the way of calls at the drivers' homes after work.

Officials of the teamsters' union pointed to nearly 200 new members as evidence of the success of the drive to date. That the drive was not a dead issue was indicated when Horace Waterbury, business manager of the San Pedro office of the teamsters' union, told newspaper reporters:

"The police have us outnumbered for the present, but we will soon have our patrols at work in several areas. We are going to concentrate on Signal Hill while a campaign is conducted to keep all non-union traffic from traveling the Ridge Route to and from the San Joaquin Valley."

Blockade activities shifted from the harbor district to Metropolitan Los Angeles later in the week but had failed in its objective according to all reports. However, the statement was made by union officials that the campaign would continue and would sweep all of southern California in the next two weeks.

The union also said that plans had not been abandoned for asking a federal court order to injoin police from interfering with the teamsters' blockade and picketing program. Their attorneys had advised, however, that the time was not ripe for asking this injunction, it was said.

Except for this threat to movement of contract haulers, the oil industry continued to be unaffected by developments in labor troubles on the Pacific Coast. Tankers were on the "free" list and shipments of California oil and products proceeded at a high rate. Dearth of bunker business, of course, continued to represent a loss to petroleum suppliers, but this was offset to some extent by the increase in freight movement on oil-burning rail lines.

Nominated to Head Okla. Oil Truckers

TULSA, Dec. 3.—J. E. Johnson, of the Tide Water Associated Oil Co., has been nominated for presidency of the Petroleum Motor Transport Association of Oklahoma for 1937. Charles H. Rudy, Ohio Oil Co., has been nominated first vice president, H. L. Armstrong, Skelly Oil Co., second vice president, and L. E. Schroeder, Mid-Continent Petroleum Corp., renominated secretary-treasurer.

The association will vote on the nominating committee's report Dec. 18.

Johnson would succeed H. D. Patridge, of the Indian Territory Illuminating Oil Co., Bartlesville, while the new directorate would comprise the new officers, together with E. J. Strawn, Shell Petroleum Corp.; H. J. Chambers, Oklahoma Natural Gas Corp., and J. A. Huitt, Deep Rock Oil Corp.

REFINERS SEE HIGHER COSTS IN NEW RATING

N. P. N. News Bureau

TULSA, Dec. 5.—Directors of the Western Petroleum Refiners Association at their quarterly meeting here Dec. 3 discussed informally the Ethyl Gasoline Corp.'s recently announced but now temporarily suspended optional method for determining octane rating.

The discussion was reported to have developed after Emby Kaye, vice president of Skelly Oil Co. and chairman of the association's manufacturing committee, reported what had been accomplished at a recent meeting in New York by an informal committee named by the industry to study the situation created by the new proposal.

It appears that the committee decided to study the problem through several sub-committees. One of these apaprently will gather all the facts possible from known road test and correlation data. Another will review all testing methods and new laboratory data, with a view to determining whether a new testing method could be developed which would eliminate the objections that apparently developed within the industry after Ethyl's proposed change was announced on Oct. 17. These groups are expected to have their reports ready within 60 days.

The W.P.R.A. directors took no action in the matter. Reports were that the directors were entirely informal in their discussions, speaking individually as refiners rather than as members of the association's directorate.

It is reported the W.P.R.A. committee now engaged in the study of the problem resulting from the Ethyl corporation's proposal is confined to the technological questions only and that its efforts will be directed toward a study on one hand of the optional method suggested, and on the other hand of the development, if possible, of a single testing method that will eliminate the objections of the present methods as used.

From talks with various refiners both before and after the directors' meeting, the impression was obtained that Ethyl's proposal was not, at this time at least, looked on with particular favor among the Mid-Continent refiners. One refiner said he felt the change would cause an increase in the amount of lead required for "Q" gasoline, and that right now that increased cost would have to be borne entirely by the refiner.

Refiners' Views

Another refiner said his information was that at present not more than 5 per cent of the cars on the highways required a gasoline of above 70 octane rating, and that he personally felt it was not advisable to step up the octane rating so that 95 per cent of car owners would be penalized in order to give only 5 per cent what they needed, with Ethyl premium gasoline already available for that group of car owners.

Still another refiner was reported to have said that Ethyl's suspension of the proposal for 90 days had saved his company, he believed, approximately $70,000. Another refiner said his company had been saved $50,000.

All of the refiners apparently were somewhat puzzled by the twin announcement on Oct. 17 by the Ethyl Gasoline Corp.; that of the proposed optional testing method, and of the sharing with jobbers and dealers of a portion of the 2 cents per gallon premium now paid for Ethyl gasoline. One refiner expressed the opinion that the Ethyl Corp. on the one hand was seeking to stimulate the sale of premium gasoline by sharing the premium with the jobbers and dealers, and at the same time was proposing a step which tended to defeat that very purpose by seeking to raise the octane rating of regular gasoline and make it suitable to at least a portion of the cars now demanding premium fuel

Assembling Data On Octane Tests

By Teletype
N. P. N. News Bureau

NEW YORK, Dec. 8. — The working group of the Co-operative Fuel Research Detonation sub-committee, under the chairmanship of D. P. Barnard, of the Standard Oil Co. of Indiana, has completed the collection of the laboratory and/or road test data from 15 companies, dealing with the motor method of knock test.

It is now correlating and assembling these data, preparatory to an intensive study of the information and of correlating this information with the test method. This work is now being pushed by the group assembled in New York.

This is the speed with which this group is following out its plan, which was developed and agreed upon at Chicago during American Petroleum Institute meeting the middle of November, for a systematic study of the test data obtained during the past several months by different oil and automotive companies. The purpose is to determine the degree of correlation, or lack of it, between the performance of 1936 cars and the standard test method for rating anti-knock values. While no announcement has been made by this working group, it is understood that a tentative report is to be prepared for presentation to the main committee at Detroit, probably at the time of the annual meeting of the Society of Automotive Engineers early in January.

Meantime co-operative work is to go on, both in the east and on the west coast, to determine the necessity for revising the present motor method for knock testing. This situation was brought to a head recently by the proposal of the Ethyl Gasoline Corp. of a so-called alternative method for rating motor fuels. Changes in the design of fuels and of automotive engines the past two years have made the need for a change in the method apparent to many technologists in both industries.

Data for this study is to be collected from all interested sources, it is understood, and the work in general is being carried out under the direction and approval of the committee, under the chairmanship of E. W. Isom, vice president for refining of Sinclair Refining Co.

Silver Anniversary

TULSA, Dec. 5.—The silver anniversary convention of the Western Petroleum Refiners Association will be held March 29, 30 and 31, at the Baker Hotel, Mineral Wells, Texas. This was decided by the directors at their quarterly meeting at the Mayo hotel here, Dec. 3.

Secretary Bourque was requested to make every effort to have as many organizers of the association as possible attend this 25th convention. The directors also approved plans to give a sizable portion of the program to technical and manufacturers' meetings.

Pioneer Marketer Dies

PHILADELPHIA, Dec. 3.—Harry C. Hoffman, old time oil man and former active member of the National Petroleum Association, died Dec. 2. Prior to his retirement several years ago he was associated with Tiona Petroleum Co., joining that company when it was formed in 1924. He had been associated with the Union Petroleum Co., in its sales department, for 20 years before joining Tiona and prior to that was with Tiona Refining Co. and Bosshardt & Wilson.

New Texaco Jobber

SHELBY, Mich., Dec. 7.—Kelly Super Service has been organized here to do a petroleum jobbing business in Oceana county under the Muskegon Co-Operative Oil Co., Muskegon, Mich. The company is handling Texaco products.

Canfield Oil Head Dies at Age of 86

CLEVELAND, Dec. 8.—Louis Carruth, president of the Canfield Oil Co., and one of the oldest active oil men in the country, died suddenly of a heart attack the evening of Dec. 7 at his residence, 2508 Wellington Rd., Cleveland Heights. He had been ill only since Dec. 3.

Although 86 years old last June 18, he drove back and forth to business every day. He continued up to the last active management of the company he headed for 16 years.

Mr. Carruth's 61-year connection with the oil industry began in Cleveland in 1875 with the old Merriam & Morgan Paraffine Co., one of the early makers of paraffine oils and waxes.

In 1887, one year after George R. Canfield organized the Canfield Oil Co. here, Mr. Carruth joined that company as salesman. He remained for 50 years, to become, in turn, secretary, vice-president and finally president, on Mr. Canfield's death in 1920. He saw this company grow from a small compounding plant on E. 55th St. and the Erie railroad, in Cleveland, to a modern enterprise, with two refining plants an export plant and a chain of service stations through northern Ohio.

Mr. Carruth was born in 1850 at Groton, N. Y. He came to Cleveland when a young man and had worked for only a short time before joining the Canfield company.

He is survived by two sons, H. M. Carruth, who is secretary of the Canfield company, and W. M. Carruth, a professor at Hamilton College, Clinton, N. Y.; and a daughter, Alice M. Carruth, Cleveland. His wife died about a year ago. Funeral services were to be held Dec. 9 in the Church of the Covenant, Cleveland and interment was to be in Lakeview Cemetery.

DOUBLE IMPORT TAX ON CRUDE PRODUCERS PETITION CONGRESS

L. E. SMITH
N. P. N. Tulsa News Bureau

OKLAHOMA CITY, Dec. 2

Pledged by resolution to furtherance of a vigorous program in correction of oil industry difficulties and maladjustments, the Independent Petroleum Association of America closed last night the most successful and best attended convention in its history.

Charles F. Roeser, Fort Worth independent producer, was reelected president and the association's executive staff was reelected. Members of this staff are Harold B. Fell, executive vice-president; Russell B. Brown, general counsel; C. E. Buchner, executive manager and T. J. Steuart, assistant to the president. Brown and Steuart maintain offices in Washington; general offices are in Tulsa.

Briefly, the program to which the I. P. A. A. will address itself includes the following topics:

Imports Restrictions: Congress was petitioned to impose an "adequate tariff" on imports of petroleum and products and to maintain present excise taxes (one-half cent per gallon on crude oil, gas and fuel oil; 2½ cents per gallon on gasoline) until this adequate tariff is adopted but to increase the rate on crude, gas and fuel oil to a full cent per gallon. An excise tax of $2 per ton on imported asphalt was asked.

Congress was asked to legislate to restrict imports of oil to not more than 4.5 per cent of consumptive demand in the U. S., basis for the demand being Bureau of Mines estimates. That ratio was accepted during the petroleum code period as the proper level but, said the resolution, it is being exceeded greatly. In quantity, the contrast was pointed out between the daily average imports of 105,000 barrels during the last six months of 1932 and the 171,000 barrel daily average during the first nine months of 1936.

Congress was also asked to strike out the ambiguous part of Sec. 630 of the 1932 revenue act, which has been interpreted by the Treasury Department as exempting from excise taxes imported petroleum used for supplies by foreign vessels which are not vessels of war.

Hot Oil: The association asked Congress to make permanent the Connally act which prohibits interstate movement of oil produced in excess of valid state orders and regulations. It expires next June.

Price of Crude Oil: ". . . it (the I. P. A. A.) urges the industry to consider reversing its present custom of basing the price of crude oil upon the price of gasoline, setting up a price structure which will consider production costs and also the importance of maintaining constant production from the pumping wells of the nation . . ."

The resolution on price asserted: "Petroleum products are the only important articles of consumption in which the price is arbitrarily determined by the purchaser, without regard either to the cost of production or the value to the user. It is also the only commodity of importance in which the most of the raw material is dependent upon the retail selling price of the finished product. Much of the financial problems which have been faced by the petroleum industry in the past has been due to these exceptions from the generally accepted practices."

Praise was given "those companies . . . which have discontinued the practice of subsidizing one phase of their operations from the profits of another department". The association took credit for this, having suggested it at the 1935 annual meeting. It urged the policy on all in the industry—"a procedure which would make it unnecessary for any legislative body to take action requiring this."

Interstate Compact: Its renewal was urged (expiration date, Sept. 1, 1937) and ". . . this association renews its former suggestions that the Interstate Oil Compact Commission consider the formulation of plans for orderly development of new pools in order to prevent waste, and plans for the regulation of withdrawals of crude oil from storage." Consideration by the industry of extensions of the scope and authority of the compact was considered also.

Taxes: It was urged that Congress eliminate sales taxes on gasoline and lubricating oil; that state legislatures reduce taxes on petroleum and products and that diversion of gasoline taxes to purposes other than highway building and maintenance be discontinued.

Illegal Drainage of Leases: It was proposed that state laws be enacted to protect the producer whose lease is drained by the operator who exceeds his

(*Continued on page* 21)

Sanction of Cal. Voters Sought In Project to Drill Tidelands

N. P. N. News Bureau
LOS ANGELES, Dec. 4

Interest centers anew on what to do with the California state-owned oil properties, because of an initiative petition now being circulated which would prohibit drilling for oil on the beach, prohibit surface drilling on tidelands and would grant an operating contract to a private concern for exploitation of the tidelands by directional drilling from the uplands.

Governor Merriam has stated he wants the legislature to pass a measure that will give the state all the profit after drilling expense or, in lieu of this, to open these state lands to competitive bidding as a means of deriving an income that could be used to wipe out taxes and provide relief money.

From some 60 wells drilled in the Huntington Beach uplands so as to slant into that part of the structure underlying the ocean, the state is now receiving about $60,000 a month. This amounts to a royalty of between 10 and 11 per cent and depends upon such factors as production from the wells, number of wells producing (about 55 are now on production), and the posted price for the oil.

The governor figures 60 per cent royalty would not be more than the state is entitled to, and this would amount to about $600,000 a month. The present difficulty is to find a feasible means for getting this or more.

In the petitions now being circulated the state legislature will be asked, when it meets early in January, to pass a law that will:

Prohibit beach drilling; prohibit surface drilling on tide, overflowed and submerged lands; create a State Mineral

(*Continued on page* 21)

Oil Compact Body Thinks of Future

OKLAHOMA CITY, Dec. 3.—There wasn't much business to come before the Interstate Compact Commission here Dec. 1, so the time was occupied in an exchange of amenities and social courtesies.

That doesn't mean that the commission, which represents six reproducing states has nothing to do but meet quarterly and exchange pleasantries. Through committees, an intensive study is being made of the conservation statutes and practices in the several states. It is the purpose of the commission to make recommendations to the several legislatures to the end that the present laws may be strengthened where needed.

Renewal of the interstate oil compact is already being considered, although it does not expire until next Sept. 1 Tom Anglin, representing Oklahoma, told the commission that a resolution for renewal had been introduced in the Oklahoma legislature, now in special session. Oklahoma, said he, took the lead in forming the compact and it desires the honor of being the first to renew it.

Six states now adhere to the compact. They are Texas, Oklahoma, Kansas, New Mexico, Illinois and Colorado. Others have been fairly regularly represented by observers. Indications are that the list of signatory states will be lengthened soon. V. E. Bolyard, Indiana producer, told the meeting that his state was soon to join, that the state administration would ask the legislature to take such action. Henry G. Hunt, Michigan, believes his state will join after it enacts a conservation law, and he considers the prospects good for enactment of the law. Louisiana was not represented, but state authorities have been asking Compact Secretary Art. L. Walker for information. California is doubtful but the governor continues to send J. R. Pemberton, state oil umpire to meetings. Like Michigan, California has no comprehensive conservation statute. Kentucky manifests an interest; Earl D. Wallace, Lexington, again was present.

Next meeting of the commission will be in Oklahoma City, March 12. Hiram Dow, New Mexico representative, thought it would be a good idea to hold the June meeting in Santa Fe. It was so voted.

Double Import Tax

(*Continued from page* 20)

proration quota. Remedy would be recovery of the full value of the excess oil. The association authorized its president to appoint suitable committees to prepare bills to this effect for submission to the various legislatures.

Patronizing Home Industry: Local, state and federal agencies were urged to purchase articles and materials of domestic production or made from materials of exclusively domestic origin. (A notable offender, cited by this association at other meetings: federal Bureau of Public Roads and Treasury Department, which buy foreign asphalt.)

Sanction of Voters

(*Continued from page* 20)

Commission composed of three state officials: director of finance, controller and supervisor of oil and gas.

The act would direct the commission to grant an operating contract to Independent Producers, Inc., to drill for oil beneath tidelands by slant drilling from the uplands. It provides that the state shall receive 40 per cent of the net return from developments.

The commission would collect the state's 40 per cent share in proceeds and deposit this to its credit in the state treasury. Out of such funds the commission would pay all its expenses, including the salaries of employes —to be fixed by the commission.

At the end of each fiscal year all funds remaining in this account would be distributed; one half to the general fund of the state, and the other half to the Department of Natural Resources. Of the money paid to this latter department, half would be used to acquire, improve and maintain public beaches, the remaining half would go to operate and increase facilities of the state park system.

The Independent Producers, Inc., must pay all operating expenses, all taxes, except income taxes, all licenses or other governmental charges, as well as the cost of any litigation incurred, and must reimburse the State Mineral Commission for all expenses of condemning and acquiring drill sites and other lands. These payments will be made from funds received for the oil, and the remainder will be divided 60 per cent to the operating company and 40 per cent to the state.

A further provision of the act would prohibit drilling on land not within the boundaries of a known geological structure of a producing oil or gas field. This would prevent wildcatting in an effort to develop production in tidelands not now known to overlie oil or gas pools.

It will be necessary for backers of the initiative to obtain approximately 116,000 signatures of qualified voters before it can be submitted to the legislature for approval. If the legislature fails to give its sanction after this number of signatures is obtained, the measure could be put up to a vote of the people at the next general election.

It is claimed that Independent Producers, Inc., will contain a cross-section of representation from all leading independent oil producers in the state. A. E. Wright, oil lands agent, J. Barton Hutchins, former land agent for Barnsdall Oil Co., and J. L. Hutchins, are now heading this enterprise but have indicated that the names of other sponsors will be made public later.

Mid-Continent Skyline

By LAWRENCE E. SMITH
N. P. N. Tulsa News Bureau

TULSA, Dec. 5

It has been the belief of the present writer for a long while that the whole business of federal control of oil industry will have to be gone through again. Certain matters which we are not at liberty to mention just now entered into the forming of this conclusion.

In the past week the belief was strengthened when dispatch from Washington asserted that Secretary Ickes is putting in the final licks on a bill similar to the Guffey coal control bill and that it will be tossed into Congress early in the coming session.

Ickes has been thwarted several times since 1933 in his attempt to bring all phases of the industry under his control. Congress refused to enact the bills—we lost count of how many—and the Supreme Court ended his code activities. But even casual study of the sayings and conduct of Ickes should convince anyone that he doesn't stay thwarted so long as he thinks he can do anything about it. He might easily arrive at the conclusion the recent election was a blanket benediction not only on everything the administration had done in the past but on anything it might decide to do.

Homer Hoch, chairman of the Kansas Corporation Commission, remarked, during the meeting of the Interstate Compact Commission last week, that he spoke as the representative of 17 million people. Mr. Hoch is a Republican and he was referring to the Landon vote in the November election. That's a healthy minority, but its trouble is that it is not proportionately represented in Congress. How the opposition to federal control of oil, if and when the proposal comes, is to be made manifest is something that should now be engaging the attention of all who do oppose it.

The really active support which Ickes got in his desire for grants of authority came from his own crowd. There were a few oil men who thought "limited" federal control would be a good thing. There is no such thing as a little federal control, any more than there is a "little" garlic. Full control may not come in one law, but gradual extensions of authority will finally bring everything under the federal wing, from production to retail prices.

Ickes' aids have scattered since the code ended and are working at other tasks, chiefly in Washington. But a few toots on the Ickes whistle would bring them into posse formation again and the old arguments on constitutionality and the promises of miracles to be wrought would be dusted off and paraded again.

Opposition to past attempts to regulate by bureau fiat was vigorous from several quarters, but the Texans formed the nucleus of that opposition. Recent utterances of Col. Ernest O. Thompson, chairman of the Texas Railroad Commission, show that he is ready to do battle again. The point he stresses most is that conservation programs of the states should be restricted to prevention of waste; that it is not and should never be the purpose of government to make oil scarce so as to affect price. Homer Hoch, of Kansas, strikes the same note.

Louisiana Moves to Stop Waste

The Louisiana conservation commissioner, whose office heretofore has done little on oil field regulation except to set allowables each month, swung into action this week with an order designed to stop gas wastage in the Rodessa field. Recent estimates were that about 650 million feet of gas were going into the air daily from oil wells.

The order directed the shutting in of 58 wells and their owners were ordered to "repair" them so they would produce from only one pay zone in each well. The order read as follows:

"All companies, operators or persons having wells in township 23, ranges 15 and 16, that are producing oil and (or) gas from more than one stratum in the presently recognized Glenrose oil and gas producing horizon, shall take immediate steps to repair or recomplete such wells in such manner that production shall be confined to only one producing formation."

One More Investigation

It wouldn't be Texas without an investigation of oil. At least one is in progress or potentially so all the time. Now, State Senator Joe Hill, who lives in Henderson, near the East Texas field, has swung into action. He has headed a senate committee for two years or so, but his fellow members display little interest in the matter. From time to time Mr. Hill raps for order and summons witnesses.

His usual concern has been the administration of the law under which "hot" oil is confiscated and sold. He is working on that angle again but thus far has developed nothing new. The same ground was covered by a house committee in 1935.

Hill plans to look into activities of the Texas Petroleum Council, which organization has been energetic in hot oil legislation and enforcement.

Historic Event Commemorated

It was on Dec. 4, 1928, that the discovery well of the Oklahoma City field went over the derrick top. The industry was thrilled and saddened, for already there was too much oil and proration difficulties were numerous, although East Texas had not yet been found.

But it was the discovery—not the troubles that followed—that was observed last Friday in Oklahoma City. Officials of the Indian Territory Illuminating Oil Co., which brought in the field, and members of the original drilling crew, were guests of honor at the Chamber of Commerce weekly luncheon.

Ask Court to Fix Station Cost of Selling Gasoline

N. P. N. News Bureau
LOS ANGELES, Dec. 3

How much does it cost to operate a service station and what share of the expense should be apportioned to gasoline sales.

The Retail Dealers Association, of Los Angeles, has asked the courts to decide this question and fix, by decree, what is to be taken as the cost of doing business by ten stations which it has made defendants in a suit under the California Unfair Practices Act.

The court is also asked to keep jurisdiction in the case and modify, or amend, this cost figure from time to time, as conditions may make necessary.

The Retail Dealers Association, claiming 400 members, says a service station in metropolitan Los Angeles cannot operate at a profit unless a margin of at least two cents a gallon is realized on gasoline sales.

The ten defendant independent dealers in this area are understood to be ready to prove, in answer to the desist order, that they can make a profit on their operations if they sell gasoline at 0.75 to a full cent above the tank wagon price.

A hearing to show cause why the defendant dealers should not be permanently enjoined from "selling below cost" was held Dec. 1 in the Los Angeles Superior Court. Both general and special demurrers by the defendants were overruled, the main body of the complaint was sustained, and the preliminary injunction was continued in force. Defendants will now have ten days in which to answer charges of the complaint, after which a date for the trial on its merits will be set.

Stipulations agreed to by certain of the defendants Nov. 23, to permit accountants for the plaintiff association to examine their books and records for determination of operating costs, were denied when it came to a showdown. Orders will now be asked requiring this data to be brought into court.

The action in this case will be prosecuted in accordance with provisions of the state so-called Unfair Practices Act. This is not to be confused with the Fair Trade Act, which forbids selling branded products below a price designated by the manufacturer.

The Unfair Practices Act essentially prohibits discrimination against customers in matters of price, and selling below cost and secret rebates, discounts, or other allowances which result in sales below cost.

The act further provides each article sold must bear its share of general overhead expense of doing business.

In the complaint by the petroleum dealers association, it is charged that, during the past several months, the defendants cut gasoline prices to a point below cost, plus their cost of doing business, for the purpose of obtaining gasoline customers from members of the association, who were not cutting prices below their cost of doing business.

A price war was declared to have resulted from this practice by the defendants, as members of the plaintiff were forced to meet the competition.

It was also alleged that the defendants and others who were cutting prices did so in an attempt to obtain their cost of doing business solely by reason of the sale of a large volume of gasoline, to the destruction of others not in a financial and economic position to meet the so-called below cost competition.

When, on or about Nov. 1, the price war was terminated by mutual agreement, the defendants were charged with continuing to sell their third grade gasoline at prices ranging from 12.5 to 12.9 cents a gallon, and that this gasoline was purchased at a base price of 11.75 cents a gallon.

The complaint further charged that the difference between the base price and the selling price is less than sufficient to return to the defendants their invoice price of 11.75 cents, plus the cost of doing business, as is provided in the Unfair Practices Act.

Opinion of 90 per cent of the retail petroleum industry was declared in the complaint to indicate from experience and cost studies that a selling price of 13.9 cents must be charged in order to return at least the cost of doing business when the base price was 11.75 cents.

The general effect of the injunction on Los Angeles retail gasoline markets has been strengthening, with most posted prices not less than 13.9 cents on third grade products.

Tennessee Tax Evasion Plot Unfolds in 2nd Week of Trial

NASHVILLE, Tenn. Dec. 5.—Introduction of evidence that W. H. Land, of the Land Oil Co. of Memphis, conspired with Robert Dudley, Sr., state gasoline tax inspector, and with J. H. Campbell, formerly of the Gilliland Refining Co., Gladewater, Texas, and A. C. Taylor, Texas oil broker, to ship gasoline into Tennessee billed as kerosine to escape the state taxes, occupied considerable time of the second week of the trial of Land and G. G. Gean, of Halls. These are the first of more than 20 gasoline dealers in the state indicted for tax evasion.

By state tax reports, telegrams between the alleged conspirators, bank accounts and checks, and by evidence of state auditors, the state prosecutors developed through the tedious week's testimony the transactions between the persons involved in the conspiracy.

Neither Robert Dudley, Sr., former tax inspector, nor J. V. Beasley, his associate, who turned state's evidence in exchange for immunity, reached the stand. The state is apparently attempting to build up a strong case without the testimony of the two "star witnesses," whose immunity has been subject of widespread newspaper and political criticism.

Finishing up with J. C. Greene, state inspector, who introduced state records of the Land reports to the state, through which he allegedly evaded the taxes by reporting kerosine on gasoline shipments, the state launched into the building up of circumstantial evidence of conspiracy between Land, Dudley, Campbell, and Taylor.

Bank accounts of Dudley and his wife were shown to involve more than $23,000, over the period of a few months in 1935, with his wife's account apparently a "dummy" account for use in the transactions.

Bank clerks testified that Dudley purchased cashier's checks payable to J. H. Campbell, and on each occasion these exact amounts were withdrawn from his wife's account by checks presented by Dudley. The cancelled checks endorsed by Campbell were introduced. J. V. Beasley also occasionally purchased the checks, but Mrs. Dudley's account showed withdrawals of these same amounts, bank employes testified, although they knew of no connection between Dudley and Beasley until the tax expose.

Memphis bank employes introduced testimony and records that the Land Oil Co. paid A. C. Taylor, broker, for certain cars billed as kerosine, but actually gasoline, the state charges.

Nashville telegraph files yielded 37 telegrams between the alleged conspirators, dealing with gasoline transactions, Campbell's visit to Nashville, and similar matters indicating connections between them. Some of these were offered as proof of the state's charges that Land ordered from J. V. Beasley, who operated a dummy company for himself and Dudley supposedly, and Beasley in turn gave the order to Dudley, who in turn ordered direct from Campbell. The records showed that all shipments to Land from the Gilliland refineries were billed kerosine.

Fred Williams, district manager for the General American Oil Co., successors to Gilliland, identified Campbell and his connections with the Gilliland refineries as sales manager.

But before his testimony, the Texan added spice to the trial by attacking a newspaper cameraman and smashing his cam-

(Continued on page 23)

Right of Way Is Cleared For Texas Gasoline Line

DALLAS, Dec. 5.—Right of way has been cleared for the proposed 40-mile gasoline pipeline from the East Texas Refining Co.'s plant at Longview, Texas, to Loraine, La.

Pipe has been ordered, said Freeman W. Burford, president of the company, and actual laying of the line will be started as soon as the first shipment is received.

The company's request to the Louisiana Public Service Commission for a rate of 6.9 cents per 100 pounds on gasoline in 100 tank car lots from Loraine to Fillston, La. has not been acted upon as yet. Fillston is on the west bank of the Mississippi, which would enable the company to take advantage of water shipments from this point.

Mr. Burford indicated that, while this decision is awaited, his company has been obtaining additional pipeline right of way from Loraine to Natchez, Miss., with a view to possible extension of the line in the event the rate request is not allowed.

Tax Evasion

(*Continued from page* 22)

era as he attempted to take a picture of the witness entering the courtroom. Later Williams posed freely for pictures and apologized for his attack on the cameraman.

Previously Dudley attacked a newspaper reporter who asked him a question in the state prosecutor's office.

Williams testified that Campbell handled all sales through 1935, and identified company records as procured by state auditors from the Texas office.

On cross-examination Williams admitted that the journal of 1935 showing all gasoline and kerosine sales of the Gilliland company was missing. He said that it might have been included in records subpoenaed to Madison, Wis. for an oil investigation there, although he did not know if they were still available. He did know they were "missing" from the company's records.

G. G. Gean, co-defendant with Land, has not been mentioned in any connection with the conspiracy as yet. He is reported to have introduced Dudley to Land as a step toward forming the conspiracy to defraud the state, the state has indicated.

The defense counsel, composed of an ex-governor and former state judge, along with other counsel, is fighting doggedly against admitting state records, telegrams, or oil company records as evidence involving the defendants in a conspiracy.

The trial enters its third week this week, with the probability of Dudley and Beasley taking the stand.

* * *

Copy of Sale Records Ruled Incompetent

By Telegraph

NASHVILLE, Tenn., Dec. 8.—The trial of W. H. Land and G. G. Gean, gasoline dealers charged with conspiracy to defraud the State of Tennessee, was delayed today by the illness of a juror, but the state lost its first major legal battle before the adjournment of court.

Judge Chester K. Hart ruled incompetent the State's evidence copies from the records of the Gilliland Refinery Co., Gladewater, Tex. A. L. Sharp, state auditor, copied the records which were to be introduced.

The ruling apparently makes it imperative that the state put Robert Dudley, Sr., former gasoline inspector, on the stand to prove the connection between the refinery and the dealers in the absence of the records.

The Midwest Marketer

By E. L. BARRINGER
N. P. N. Chicago News Bureau

Who is more price conscious, the customer or the oil industry?

A jobber has raised the question after a few experiments in his home town proved, in his opinion, that, if jobbers and retailers would stop keeping their eyes glued on competitors' prices and go to work peddling their own products, they would be better off.

Experiment Number One came out of a retail price squabble, with three retailers quietly posting a flat 18-cent price on their pumps. Other stations posted 18.8 cents. The three retailers were working on the theory that the public did not read carefully and did not see the .8 cent part of the price.

Days passed with the three stations selling at 18 cents but all stations in town did a normal volume of business. Then the three stations returned to 18.8 cents and business continued normal.

Experiment Number Two consisted of stopping customers and asking them the price of gasoline. A Stop sign was just a few feet from one of the exit drives of a station, and customers were questioned as they stopped for this sign, "How much did you pay for gasoline in that station?" For several days this question was put to as many motorists as it was possible to reach after they pulled out of the station.

Only 10 per cent could give the correct price per gallon, although the purchase had been made only a few minutes before.

* * *

The annual convention season for midwestern jobbers is getting under way.

Ohio and Indiana associations already have held fall meetings. Nebraska will have its annual three day meeting this week. North Dakota and Minnesota jobbers will meet in January and February dates have been announced so far for Kentucky, Ohio and Wisconsin associations.

Thus far associations have several topics in common. These are the Robinson-Patman act and taxation. Several subjects are lurking around the corner now and, before many more conventions are held, these may be given prominent places on programs. These subjects are the code, when the Federal Trade Commission takes definite action towards a hearing, state "New Deal" measures, and government regulation of the oil industry.

* * *

Some queer results sometimes come out of legislation, so a national weekly magazine commented recently in an editorial, referring to the new retail market set-up through chain store laws. Now the Social Security law produces a queer result, causing some serious consideration on the part of retailers as to possible reorganization of their capital structure to allow them to become eligible for the advantages of this act.

Retailers in at least one city are discussing at their trade association meetings the advantages of incorporating, so that Mr. Retailer then will be an employe of the corporation rather than an employer.

The point that the retailers have in mind is the possible change in their own status of employment, regarding an old age pension fund.

Assume they are now employers and do not build up any old age pension reserve. Then, say in five years, they pull out of the service station business and line up a job with some company as an employe. As an employe they will come under the Social Security law, but they would be five years behind the parade in building up a reserve.

So far this local retailer association has not taken definite action. The issue has been and is to be further discussed in meetings.

* * *

Friends of J. M. Cushman, Cushman-Wilson Oil Co., Des Moines, Iowa, will be interested in knowing that "Jim" and Mrs. Cushman have left for Tucson. Mr. Cushman has spent many months in Rochester, Minn. In spite of his considerable improvement he has been ordered to the southwest for the winter.

But ill health of executives still dogs this company. Walter Wilson, vice-president, is in Rochester now and expects to be gone for several weeks. Meanwhile Henry Wormhoudt and Henry Wilson are putting in extra hours to handle the company's business.

Charge Extortion On Tennessee Case

NASHVILLE, Tenn., Dec. 5.—Warrants charging extortion of $1000 from Phil Jones and Frank Preston, of the Consumers Oil Co., of Knoxville, were served against Robert Dudley, Sr. and J. V. Beasley the past week as the state's two "star witnesses", both given immunity, waited to testify in the gasoline tax evasion case in criminal court here.

Dudley, former state gas tax inspector, and Beasley, his "business" associate, were given immunity upon their admission to participation in the tax frauds, and served as the star witnesses to indict more than 20 state gas dealers, including Jones and Preston.

The indictments against Dudley and Beasley charged the two men with calling upon Jones and Preston for $5000 in January, 1936, to "stop" investigation of tax frauds, along with threats to expose them unless the money was forthcoming. The indictment charges that $1000 was paid under threat of implicating the Knoxville dealers and that, shortly thereafter, Dudley and Beasley testified against the Knoxville men, both of whom were indicted.

Listed as Fugitive

NASHVILLE, Tenn., Dec. 5.—John Harvey Campbell, former sales manager for the Gilliland Refining Co. of Gladewater, Texas, and now a fugitive from justice under more than a dozen indictments for conspiracy to defraud the state of Tennessee of gasoline taxes, has been placed on the "Wanted" lists of the U. S. Department of Justice.

The department notified local officials this week that Campbell's fingerprints, photograph, and record had been entered on the federal government's fugitive list, and distributed throughout the nation. Upon arrest, he is to be held for Nashville officers.

The state of Tennessee has a $1000 reward posted for Campbell following his jumping $5000 cash bond in Texas pending appeal of his extradition hearing.

Slick Properties Figure in Trade

WASHINGTON, Dec. 3.—A stock-property trade involving Transwestern Oil Co., Oklahoma City, the Thomas B. Slick Trust Estates and Berenice Slick Urschel is proposed in a registration statement filed with the Securities and Exchange Commission. Transwestern proposes to issue 750,000 shares of $10 par value capital stock, proceeds from which, with bank loans aggregating $3,000,000, will be used to buy $9,500,000 worth of prospective oil and gas properties from the Slick Estates and Mrs. Urschel.

The company sets forth that the obligation of the underwriters to purchase the stock is conditioned on the simultaneous purchase from the underwriters at $12 a share of 173,267 shares of capital stock ($2,079,204) by Arthur A. Seeligson, C. F. Urschel, and Berenice Slick Urschel, as trustees of the Slick Estates, and of half that much by Mrs. Urschel as an individual.

Besides being a trustee of the Slick Estates, Seeligson is president of Transwestern.

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S.E.C. Gets Injunction

WASHINGTON, Dec. 3.—Federal Judge Stone at Madison, Wis., has granted an injunction restraining Crude Oil Corp. of America, Tulsa, and B. E. Buckman & Co., Madison, from continuing the sale of certain agreements purporting to be bills of sale and delivery contracts for oil, it was announced today by the Securities and Exchange Commission.

Judge Stone held, the announcement said, that these agreements were "securities" as defined by the 1933 Securities Act, that registration provisions of the act were constitutional,

Coming Meetings

1936

Mid-Continent Oil & Gas Association, annual meeting of general board of directors, Tulsa, Okla., Dec. 15.

1937

Society of Automotive Engineers, Book-Cadillac Hotel, Detroit, Mich., Jan. 11 to 15.

First International Consumers Petroleum Exposition, Convention Hall, Detroit, Mich., Jan. 16 to 24.

Northwest Petroleum Association, North Dakota division, Patterson Hotel, Bismarck, Jan. 18, 19.

Northwest Petroleum Association, Minnesota division, West Hotel, Minneapolis, Jan. 21, 22.

Associated Motor Carriers of Oklahoma, annual convention, Oklahoma City, Okla., Jan. 25 and 26.

Oklahoma Petroleum Marketers Association, Oklahoma City, Okla., some time in January.

Kentucky Petroleum Marketers Association, Brown Hotel, Louisville, Ky., Feb. 8, 9, 10.

Ohio Petroleum Marketers Association, Hotel Deshler-Wallick, Columbus, Ohio, Feb. 23, 24 and 25.

Wisconsin Petroleum Association, annual convention and equipment show, Plankinton Hotel, Milwaukee, Wis., Feb. 23, 24 and 25.

Iowa Petroleum Association, Des Moines, Iowa, Feb. 24 and 25.

American Society for Testing Materials, 1937 Regional Meeting and Committee Week, Palmer House, Chicago, Ill., March 1 to 5.

National Oil Burner and Air Conditioning Exposition, Commercial Museum, Philadelphia, Pa.; March 15 to 19.

American Association of Petroleum Geologists, Biltmore Hotel, Los Angeles, Calif., March 17, 18, 19.

Western Petroleum Refiners Association, Silver Anniversary Convention, Baker Hotel, Mineral Wells, Tex., March 29, 30, 31.

American Institute of Mining & Metallurgical Engineers, Open Hearth Conference, Birmingham, Ala., April 7 to 9.

Petroleum Industry Electrical Association, Shreveport, La., April 8 to 10.

National Petroleum Association, 34th semi-annual meeting, Cleveland Hotel, Cleveland, Ohio, April 15 and 16.

Oil Equipment & Engineering Exposition, Houston, Texas, April 19 to 24.

American Petroleum Institute, Mid-Year Meeting, Broadmoor Hotel, Colorado Springs, Colo., June 1, 2, 3.

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Rehearing Denied

WASHINGTON, Dec. 7.—Rehearing of the case in which the Supreme Court last month held that Texas oil property owners are subject to state gross production taxes on oil received as royalties under the state law of 1933 today was denied by the high court.

The court upheld the Texas Civil Court of Appeals in its ruling that the appellants, Joseph H. Barwise and George Thompson, Jr., trustees of the Mrs. W. M. Cook estate, were not entitled to exemption from the tax, which exemption they claimed, pointing to the contract clause of the Constitution.

CLEVELAND, Dec. 3.—The Firestone Tire & Rubber Co., Akron, has purchased the Memphis, Tenn., body plant of the General Motors Corp. and will equip it to manufacture tires. It is reported a schedule of 2000 tires per day is planned.

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Markets

Continental Crude Advance Bolsters Refined Oils . .

N. P. N. News Bureau

CLEVELAND, Dec. 7

CONTINENTAL'S announcement that it would advance crude oil prices 17 cents a barrel Jan. 4, a 0.3-cent advance in dealer and consumer tank wagon prices of kerosine in the S. O. Indiana territory, and, as this is written, announcement that S. O. Indiana would advance gasoline prices 0.3 cent Dec. 9 were highlights in oil markets the first week of December.

That the trade should be given a month's notice of an impending crude advance in order that "certain confused situations with respect to allowables, drilling programs and the like, may be cleared up" was the only surprise in Continental's action. Predictions of a crude advance, either before or just after the turn of the year had been going the rounds. The statistical position of the industry is now the best in years.

The crude market has been tight for months. Despite the fact that allowables have been exceeded, crude stocks have decreased steadily so that today there is less than 100 days' supply above ground. Some refiners have less than a month's supply. Competition for crude connections has become unusually keen; premiums have been paid quite freely.

Except that a few refiners withdrew from the refined oils market until they could determine the future trend, Continental's announcement had little direct effect on refinery markets. The higher octane gasolines remained fairly firm but the low octane and off-specification material was offered more freely in some districts.

Aside from the pending crude advance, trade interest centered on kerosine and fuel oils. Prices for these oils worked higher in many districts on increased demand. When it became known that kerosine prices would move up 0.3 cent in the Standard of Indiana territory, traders became more optimistic about the outlook. The margin between tank car and tank wagon prices had become pretty narrow. Jobbers, therefore, were beginning to buck higher tank car prices. Thus, the tank wagon advance relieved the pressure that was being built up over the tank car markets.

When Continental's intention of raising crude prices became known, speculation as to the trend of gasoline became rife. Gasoline, particularly the higher octanes, was firm in both the Mid-Continent and Mid-Western markets. While price shading was reported in a few instances, it was not sufficient to affect the market generally.

As in the case of kerosine, the margin between tank car and tank wagon gasoline prices also was narrow. That an increase in crude costs must ultimately reflect in higher consumer prices was the general opinion. With tank wagon prices moving higher, jobbers were in a better position to support the tank car market with buying orders.

Several sales of kerosine and light fuels were reported in the Gulf market. Two full cargoes of kerosine were sold to one buyer at prices 0.25 cent above last previous cargoes sold. This oil will be taken out this month either for export of coastwise shipment.

Surprise was expressed in some quarters at these sales which became known at the same time it was announced that a boat had been chartered at 42 cents a barrel for shipment of kerosine from the Gulf to the North Atlantic seaboard. The spread between the cargo price at the Gulf and the New York harbor barge price was only 0.25 cent.

Pennsylvania lubricating oils remained in good shape. Neutrals still were difficult to obtain; bright stock was well held. Some sellers of Mid-Continent lubricating oils indicated that demand for bright stock and neutrals was on the increase. Mid-Continent neutrals, particularly, have failed to reflect the usual seasonal increase in demand.

More traders were predicting higher prices for wax as demand continued active. Apparently only odd lots were available at current market quotations.

Chicago

Market Unsettled

N. P. N. News Bureau

CHICAGO, Dec. 5

Two developments of importance in the Mid-Western market the past week were the announcement of a 17-cent advance in crude prices, effective after the start of the new year, and a general advance in kerosine prices in the S. O. Indiana territory.

The former easily was the outstanding market feature of the year. Although some traders had expected an advance in crude prices, Continental's announcement came as a complete surprise and resulted in highly unsettled markets.

Most sellers withdrew from the market after the announcement and remained out Dec. 4 and 5. They said they would await some definite reaction in the tank car market before again becoming active participants in trading.

Following the announcement there was considerable speculation on the future of wholesale markets. Some sellers expressed the belief that present tank car prices have already discounted the crude advance, and while expecting firm markets, were not looking for any appreciable change in refined oil prices.

Others believed that it was doubtful if major crude purchasers would meet the advance schedule by Continental.

However, sellers who decried the advance did not substitute their beliefs by a continuation of trading at old prices. They, too, withdrew from the market.

There were others who believed that refiners at least would take advantage of the bullish situation created by the announcement and would ask higher prices when the market opened next week. These beliefs, however, were purely speculative.

As the week ended, most quotations, although unchanged, were largely nominal.

The general advance in kerosine prices, effective Dec. 4, was expected in most quarters. The reaction, or rather lack of reaction, to the advance gave every indication that previous advances in tank car prices had discounted the 0.3-cent tank wagon advance. Prices were firm, but not appreciably higher after the change.

Prior to announcement of the scheduled crude advance, the gasoline market was featureless, and price shading of full specification grades of low octane U. S. Motor resulted in a slight reduction in general market prices Dec. 1.

The reduction from 4.625 to 4.5 cents in low octane U. S. Motor, seemingly, was in the nature of an attempt on the part of sellers to force movement of this product. However, reports were that lower prices had stimulated little new business.

Extremely low octane gasoline, not considered representative material, still shaded general market prices by at least 0.25 cent. Too, offerings of gasoline from Michigan, although restricted, were reported moving into southeastern Wisconsin, and northern Indiana at under prevailing Group 3 quotations.

Full 68-70 octane gasoline brought upwards from 5.5 cents all week. Reports were that movement of this product has been curtailed considerably by cold weather over the Middle West. Occasional reports of price shading on this product were encountered, but generally they covered gasoline with an octane number slightly under the minimum for this bracket.

Although reports of retail gasoline advances persisted, no change of consequence was reported the week ended Dec. 5. These reports were heightened somewhat by the advance in retail kerosine prices.

Mid-Continent

All Products Steady

N. P. N. News Bureau
TULSA, Dec. 5

Announcement of the 17-cent crude price advance to be posted Jan. 4 by Continental Oil Co. came too late in the week to determine its effect on Mid-Continent markets.

The announcement came at a time when practically all petroleum products were in good shape in the Mid-Continent. With the exception possibly of one or two grades of gasoline, prices for refined products were steady.

If the 17-cent crude advance becomes general it may result in a reversal of jobber buying policies, according to some traders. December usually is a slow month for gasoline. Jobbers generally desire to keep inventories as low as possible for tax purposes. But if crude prices are to be advanced generally, jobbers may figure they would be better off if they maintained normal gasoline stocks. Thus instead of a letup in buying, movement of gasoline may pick up.

It was generally believed that the crude advance will be partially discounted by higher tank car prices, even before new crude schedules become effective.

Whether the advance is discounted or not, most observers believed the result would be steadier gasoline markets. At present there are numerous small-lot offerings of low octane gasoline available for immediate shipment. So far, due to light demand, it has been somewhat difficult to dispose of these offerings. It was believed higher crude prices might open up wider markets into which this distress motor fuel might be moved.

Then there is the so-called "off-specification" gasoline that has been floating around. This gasoline has assumed larger proportions as volume of open market business decreased.

Supplies of East Texas gasoline probably were the tightest in the entire Mid-Continent field. Stocks of motor fuel in this district have been kept low by increased shipments to the Gulf Coast for further refining, and coastwise or export shipment. Another export order the past week furnished orders for virtually the entire December output of several East Texas plants. This export order called for delivery of 350 cars of gasoline to the Gulf Coast over the first 20 days of December. Traders were more convinced that East Texas, as a source of supply for northern buyers, was becoming less of a factor.

Gasoline, especially low octane grades, was more freely offered from several plants in Oklahoma and one or two Texas districts. Although refiners were pushing sales of this gasoline, price concessions were not prominent.

Shipments of high octane motor fuel were fairly brisk despite inclement weather in some sections. Sellers generally reported most inquiries now called for gasoline with quick-starting qualities and high-octane rating. Competition on gasoline with 63-67 and 68-70 octane rating was keener in one or two marketing districts. Generally, however, current prices were obtainable throughout most of the Standard of Indiana territory.

Demand for Mid-Continent kerosine for use as range oil and as a substitute heating oil has been so brisk lately that stocks have been depleted at many refineries. Scarcity of available supplies sent prices up 0.125 cent in most Mid-Continent districts the past week.

East Texas refiners were so completely sold up they apparently were unable to fill an export order for 100 to 150 cars of gasoline. Price offered was reported to be 3.5 cents f.o.b. plants. Price, however, was not as much of a factor as the scarcity of available supplies. For domestic shipment, East Texas refiners were quoting 3.5 to 3.625 cents, f.o.b. plant. Volume available at 3.5 cents, however, was small. Local demand for kerosine, that netted slightly more than interstate sales, was reported fairly brisk.

Renewed buying of Mid-Continent lubricating oils was expected by some manufacturers. They pointed out that many buyers stocked up on lubes when prices were at depressed levels. These stocks would be depleted shortly, they believed. Increased buying was expected to center on neutral oils.

Unsettled economic conditions in Europe have been responsible for increased inquiry for lubricating oils, according to suppliers.

Supplies of Mid-Continent wax available for immediate shipment were scarcer the past week. Contract customers were taking most of the wax produced in the Mid-Continent. The 124-126 grade was quoted generally at 2.625 cents, f.o.b. plant.

No indications of price changes were noted for natural gasoline the past week. Prices remained steady, although there was nothing spectacular in transactions. Most sellers were sold up at least until Dec. 10, reports indicated.

Eastern

Kerosine Unsettled

N. P. N. News Bureau
NEW YORK, Dec. 5

The announcement of an impending advance in Mid-Continent crude oil prices by Continental Oil Co. and one or two others proved the most interesting topic of the week among eastern traders. It came too late in the week to have any effect on prices.

Feeling as to the probable effect of the action was divided, but most of the traders contacted expressed the opinion that other major buyers also would advance their prices early in January, and, if they did, the gasoline and kerosine markets along the seaboard also would advance. Some said they were uncertain as to the probable action of other large crude buyers. They believed the present refined markets hardly reflected present crude price, and they doubted if refined prices would advance enough to repay the added crude cost.

The kerosine picture was somewhat unsettled at northern seaboard points with conflicting trends apparent. At most points indications were towards a strong market. Although no change was made in jobber prices for barge deliveries, f.o.b. New York harbor, which were at 4.5 cents in most instances, several large refiners were buying kerosine and one or two were forced to pay 4.75 cents for some oil, which represented 0.25 cent premium over the jobber market. On the other hand, something of a "price war" appeared to be going on at Providence and kerosine was being sold there at 4.375 cents, both in tank cars and barges.

Eastern traders were considerably intrigued by the news that two cargoes of kerosine had been sold at 4.25 cents f.o.b. the Gulf, and that a boat had been chartered at 42 cents a barrel for shipment of kerosine from Gulf to North Atlantic.

Pennsylvania

Trading Slack

N. P. N. News Bureau
CLEVELAND, Dec. 5

With jobber buying of most products pretty much on a hand-to-mouth basis, trading generally was slack in the Pennsylvania market the first week of December. Furnace oil blends of kerosine and 36-40 fuel oil were getting the most play. Neutral oils were relegated to second place largely because buyers found they had to wait for refiners to catch up on orders.

With demand for gasoline reduced by cold weather, production of the higher octanes was curtailed. Stocks of U. S. Motor gasoline, however, were on the increase. Kerosine, as such, was not moving too well. Fuel oil was a bit freer than had been expected. Bright stock remained firm.

Despite the fact that buying was slack, sellers generally were not pushing products on the market. At least they apparently were not willing to shade prices to get business, except on U. S. Motor.

Neutral oils remained firm as most refiners still were behind on shipments. The lack of new demand for neutrals was due largely to the fact that most buyers had already placed their orders and were waiting for refiners to make shipment. Buyers found some time ago that it was almost useless to circulate inquiries.

Bright stock and 600 steam refined inventories were at the lowest level in several years and shipments to exporters on orders placed previously kept current production moving. Many refiners were quoting slightly higher prices. There were, however, sufficient quantities of 25 pour test, No. 8 color bright stock available at 20.5 cents to be representative of the general market.

While many sellers were disappointed in the failure of kerosine to improve, others, particularly in the Bradford-Warren district, reported demand was fairly active. Several refiners in that district advanced prices for 45 water white to 5 cents. Others in the district, however, continued to quote 4.75 cents.

Fuel oil also was better in the Bradford-Warren district than in other districts. Majority of quotations throughout the field, however, were 4.5 cents for the 36-40 grade.

Demand for wax was fairly active. Most refiners have sold December production. In some cases they were asking higher prices for January delivery.

Coastal

Kerosine, Fuels Active

N. P. N. News Bureau

NEW YORK, Dec. 5

Kerosine and light fuel oils were active in the cargo market at the Gulf the week ended Dec. 5, with numerous inquiries and sales reported.

Sales of two cargoes of kerosine, one of gas oil and two of No. 2 fuel oil were confirmed during the week and unconfirmed reports of several other transactions were heard. The sales represented an advance of 0.25 cent in kerosine and 0.125 to 0.25 cent on the gas and fuel oils over last previous cargoes sold.

The kerosine transaction involved two full cargoes of 41-43 water white oil at 4.25 cents f.o.b. the Gulf, both purchases being made by the same company. The oil will move during December, either for export or domestic coastwise shipment, it was reported.

Two full cargoes of No. 2 fuel oil were sold for late December or early January loading for coastwise shipment. The price paid in both cases was 3.625 cents, f.o.b. the Gulf. Unconfirmed reports were that two other cargoes of No. 2 oil were sold during the week, one at 3.5 cents and the other at 3.75 cents, f.o.b. the Gulf. The gas oil purchase covered a cargo of 30 plus translucent oil, minimum of 20 cold test, for December lifting to Europe at 3.625 cents, f.o.b. the Gulf.

No open market cargo inquiries for gasoline were reported during the week. Quotations in some quarters were 0.125 cent lower than in the preceding week, although most suppliers said their output was taken care of by previous commitments either at the Gulf or along the eastern seaboard, and they were not interested in the open market. The 65 octane and above grade was reported available at 5.875 cents; 60-64 octane at 5.625 to 5.75 cents; and 59 octane and below at 5.375 to 5.5 cents, f.o.b. the Gulf.

Bunker oil inquiries were reported during the week but no open market business was closed. Most independent buyers said the Gulf market was too high in relation to Atlantic seaboard prices to make Bunker C oil an attractive buy at present.

Wax

Scale Firm

N. P. N. News Bureau

NEW YORK, Dec. 5.—Scale wax was reported firm by most traders the past week. No changes were apparent in prices, with sales of 124-126 white scale generally at 2.4 to 2.5 cents. These sales for the most part were for spot shipment and for small lots.

Several traders said that buyers were showing considerable interest now in contracts for 1937, but that suppliers were reluctant to commit themselves for deferred delivery.

(*Continued on page* 38)

Fuel Oil . . DEMAND IS STEADY; PRICES UNCHANGED

N. P. N. News Bureau

CLEVELAND, O., Dec. 8

LIGHT fuels were getting the most play as colder weather brought more consumers into the market the past week. Prices generally were unchanged, although some refiners advanced their prices and less oil was available in most refinery districts.

A few refiners withdrew from the market when Continental announced it would advance crude prices 17 cents a barrel Jan. 4. Others, however, continued to offer at the going market pending determination of the future trend.

Industrial plants continued to absorb about all the heavy fuels they could find. In some instances, industrial buyers were looking for supplies from districts other than those where they usually buy.

* * *

NEW YORK, Dec. 5.—Light fuel oil markets were steady at eastern terminals the past week. Prices generally remained unchanged.

The only change in tank car and barge prices occurred at New York harbor, where No. 4 oil generally was up 0.125 cent for open market business. Some contract shipments were reported at 3.75 cents for tank car delivery, but jobbers in the open market were having to pay at least 3.875 cents. Several suppliers, who had oversold were trying to buy or borrow No. 4 oil, but in general they met with little success. No. 2 fuel also was tight but was more freely available than No. 4.

Traders were expecting every day to receive announcement that other large suppliers had advanced their light fuel oil prices 0.25 cent at eastern terminals to conform with the advance made by Sinclair Refining Co. Nov. 27. However, the week ended without the larger companies, such as Socony-Vacuum and Standard of New Jersey making any expression of their intentions in this regard.

Heavy fuel oil markets also were in good shape with no changes reported in prices.

* * *

TULSA, Dec. 5.—Heavier buying of fuel oils by northern and mid-western buyers was reported in the Mid-Continent the week ended Dec. 5.

Some refiners attributed increased buying of light fuels to heavier consumption of heating oil and the subsequent depletion of stocks at some distributing centers. In any event, the number of inquiries for light fuel oil exceeded actual sales, most refiners reported. Price apparently was of little importance to buyers; immediate shipment was the main requisite. As the week ended, most suppliers were quoting advanced prices for some grades of oil.

A direct reversal of buying trends was reported by most traders in the light fuel oil market. Preliminary purchases of light fuels at the beginning of the season indicated most buyers preferred Nos. 2 and 3 oils for heating oil requirements. Inquiries at present, however, call for No. 1 oil. This change has been brought about by the scarcity of Nos. 2 and 3 oils available for immediate shipment.

Some observers were surprised last week when statistical reports showed stocks of most light fuels had increased slightly over the past few months. Increases were not excessive, however, and most traders believed they reflected merely the desire of refiners to accumulate oil to cover heating oil commitments.

Diesel oil was reported more difficult to obtain the past week. Active demand for light fuels for heating purposes apparently has cut down volume of diesel oil manufactured.

Heavy fuels were in good shape as de-

(*Continued on page* 33)

FUEL OILS

Prices in Effect Dec. 7, 1936

Following are tank wagon prices of various grades of heating oil at the points shown in various territories. Prices are in cents per gallon.

	No. 1	No. 2	No. 3	No. 4
S. O. NEW JERSEY				
Newark, N. J.	7.25	6	6	6
Atlantic City, N. J.	8	6.5	6.5	6
Baltimore, Md.	8	6	6	5.5
Washington, D. C.	8.00	6.75	6.75	6.75

Discounts: At Newark and Atlantic City, purchasers taking 50,000 gals. get discount of 0.5c per gal.

SOCONY-VACUUM OIL CO., INC. (S. O. New York Division)				
New York City	7	6.50	6.50	6.00
Albany, N. Y.	7.75	6.50	6.50	6.00
Rochester, N. Y.	8.25	7.00	7.00	7.00
Boston, Mass.	7.00	6.25	6.25	6.25
Bangor, Me.	6.50	5.50	5.50	5.50
Manchester, N. H.	8.00	6.75	6.75	6.75
Burlington, Vt.	8.75	7.00	7.00	7.00
New Haven, Conn.	7.50	5.50	5.50	5.50
Providence, R. I.	7.00	6.25	6.25	5.75

Discounts: At New York City, consumers taking 10,000 to 50,000 gals., get 0.25c per gal. discount when minimum amount has been reached; above 50,000 gals., 0.5c.

ATLANTIC REFINING				
Philadelphia, Pa.	6.75	5.50	5.50	5.00
Allentown, Pa.	7.75	6.50	6.50	6.50
Wilmington, Del.	7.25	6.00	6.00	5.50
Springfield, Mass.	7.50	6.00	....	6.00
Worcester, Mass.	7.75	6.75	....	6.75
Hartford, Conn.	7.00	6.50	....	6.50
S. O. OHIO				
*Ohio Statewide	8.00	7.50	7.00	6.75

Note: S. O. Ohio prices are for hose dumps, bucket dumps are 0.5c per gallon higher.

Except Cleveland Division and City of Toledo. In Cleveland Division (Cuyahoga, Lake and Geauga counties), No. 1 price is same as statewide; Nos. 2, 3 and 4 are 0.5c higher; No. 5 is priced 0.25c lower than No. 4. In Toledo No. 2 is 0.5c lower than statewide, others same.

S. O. INDIANA

Stanolex Fuel and Furnace Oils

	No. 1 Fuel	Stanolex Furnace
Chicago	7.00	7.00
Indianapolis	....	*11.7
Detroit	6.8	6.8
Milwaukee	8	7.3
Minneapolis	7.25	7.25
Sioux City	7.1	7.1
St. Louis	7.5	6.8
Kansas City	6.5	6.5

*Includes state tax of 4c.

Note: Small-lot deliveries of light fuel oils range up to 2c higher than above quotations.

REFINERY TANK CAR MARKETS

Prices in cents per gallon, tank car lots, except where otherwise noted. Inter-refinery and export prices not included. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude.

Gasoline *and* Naphtha

	Dec. 7	Nov. 30	Nov. 23
OKLAHOMA (Prices represent majority of quotations or sales, f.o.b. Oklahoma refineries)			
48-54, 450 e.p. naphtha	*4.625- 4.75	*4.625- 4.75	*4.625- 4.75
U. S. Motor gasoline, by octane numbers:			
62 octane and below	4.75	4.75	4.75
63-67 octane	5.125- 5.375	5.125- 5.375	5.125- 5.375
68-70 octane (regular)	5.75	5.75	5.75
60-62, 400 e.p. gasoline	4.75 - 4.875	4.75 - 4.875	4.75 - 4.875
64-66, 375 e.p. gasoline	*5.00 - 5.125	*5.00 - 5.125	*5.00 - 5.125
68-70, 350-360 e.p. gasoline	*5.125- 5.25	*5.00 - 5.25	*5.00 - 5.25

*Nominal.

WESTERN PENNA. (Prices represent majority of quotations or sales)

Bradford-Warren:			
52-54 naphtha	5.375- 5.50	5.375- 5.50	5.375- 5.50
Motor gasoline:			
U. S. Motor (58-62°)	5.50 - 5.625	5.50 - 5.625	5.50 - 5.625
Minimum 60 octane	7.00 - 7.125	7.00 - 7.125	7.00 - 7.125
Minimum 65 octane	7.25 - 7.375	7.25 - 7.375	7.25 - 7.375
Minimum 70 octane			
64-66, 390 e.p. gasoline	5.75 - 5.875	5.75 - 5.875	5.75 - 5.875
68-70, 350-360 e.p. gasoline	6.00 - 6.125	6.00 - 6.125	6.00 - 6.125
Other districts:			
52-54 naphtha	5.375- 5.50	5.375- 5.50	5.375- 5.50
54-56 naphtha	5.50 - 5.625	5.50 - 5.625	5.50 - 5.625
Motor gasoline:			
U. S. Motor (58-62°)	5.50 - 5.625	5.50 - 5.625	5.50 - 5.625
Minimum 60 octane	7.00 - 7.125	7.00 - 7.125	7.00 - 7.125
Minimum 65 octane	7.25 - 7.375	7.25 - 7.375	7.25 - 7.375
Minimum 70 octane			
64-66, 390 e.p. gasoline	5.75 - 5.875	5.75 - 5.875	5.75 - 5.875
68-70, 350-360 e.p. gasoline	6.00 - 6.125	6.00 - 6.125	6.00 - 6.125

CALIFORNIA (3c tax to be added to prices if used in state)

54-58 U. S. Motor, 437 e.p. for in-state shipment	8.00 - 8.50	8.00 - 8.50	8.00 - 8.50
54-58 U. S. Motor, 437 e.p. for outside state shipment	7.75 - 8.50	7.75 - 8.50	7.75 - 8.50
58-61, 375-400 e.p. gasoline, 65 octane and above	8.25 - 9.00	8.25 - 9.00	8.25 - 9.00

†**NORTH TEXAS** (Prices represent majority of quotations or sales, F.o.b. Wichita Falls district for shipment to Texas and New Mexico destinations; Group 3 prices quoted on northern shipments).

U. S. Motor gasoline, by octane numbers:

62 octane and below	4.75	4.75	4.75
63-67 octane	5.125- 5.25	5.125- 5.25	5.125- 5.25
68-70 octane (regular)	5.75	5.75	5.75
60-62, 400 e.p. gasoline	4.75 - 4.875	4.75 - 4.875	4.75 - 4.875
64-66, 375 e.p. gasoline	4.875- 5.00	4.875- 5.00	4.875- 5.00
68-70, 350-360 e.p. gasoline	5.00 - 5.125	5.00 - 5.125	5.00 - 5.125

KANSAS (F.o.b. refinery, Kansas destination)

U. S. Motor gasoline, by octane numbers:

62 octane and below	5.00 - 5.125	5.00 - 5.125	5.00 - 5.125
63-67 octane	*	*	*
68-70 octane (regular)	6.00 - 6.125	6.00 - 6.125	6.00 - 6.125
60-62, 400 e.p. gasoline	5.00 - 5.125	5.00 - 5.125	5.00 - 5.125

*This price discontinued due to thinness of open market sales

†**WEST TEXAS and NEW MEXICO** (Prices represent majority of quotations or sales, F.o.b. W. Texas and N. Mexico refineries for unrestricted shipment unless otherwise noted.)

U. S. Motor gasoline, by octane numbers:

62 octane and below	4.75	4.75	4.75
63-67 octane	5.125- 5.25	5.125- 5.25	5.125- 5.25
68-70 octane (regular)	5.75	5.75	5.75

†**EAST TEXAS** (Prices represent majority of quotations or sales, F.o.b. East Texas refinery for unrestricted shipment unless otherwise noted)

U. S. Motor gasoline, by octane numbers:

62 octane and below	*4.625	*4.625	*4.625
60-62, 400 e.p. gasoline	*4.625	*4.625	*4.625

*Nominal.

NORTH LOUISIANA (Prices represent majority of quotations or sales, f.o.b. Louisiana refineries, for shipment within Louisiana and into Arkansas)

U. S. Motor gasoline:

62 octane and below	5.50	5.50	5.50
63-67 octane	6.25	6.25	6.25
68-70 octane (regular)	6.50	6.50	6.50

†Refiners generally receive from 0.25c to 0.5c per gallon more for gasoline and kerosine for local or differential territory shipment.

	Dec. 7	Nov. 30	Nov. 23
ARKANSAS (Prices represent majority of quotations or sales, f.o.b. Arkansas refineries, for shipment within Arkansas and into Louisiana)			
U. S. Motor Gasoline:			
62 octane and below	5.50	5.50	5.50
63-67 octane	6.25	6.25	6.25
68-70 octane (regular)	6.50	6.50	6.50
OHIO (Quotations of S. O. Ohio. Delivered any point in Ohio)			
U. S. Motor gasoline	8.50	8.50	8.50
Above 65 octane no.	8.75	8.75	8.75

Natural Gasoline

(Prices shown f.o.b. Group 3 and Breckenridge represent majority of quotations or sales to blenders on freight basis shown below. Shipments, however, may originate in other Mid-Continent manufacturing districts, such as Panhandle Texas, Southwest Texas or Kansas.)

F.O.B. GROUP 3			
Grade 26-70	4.75	4.75	4.75
F.O.B. BRECKENRIDGE			
Grade 26-70	4.625	4.625	4.625
CALIFORNIA (F.o.b. plants in Los Angeles basin)			
75-85, 375-390 e.p. for blending	7.50 - 7.75	7.50 - 7.75	7.50 - 8.00

Kerosine

WESTERN PENNA. (Prices represent majority of quotations or sales)

Bradford-Warren:			
45 w.w. kerosine	4.875- 5.00	4.75 - 4.875	4.75 - 4.875
46 w.w. kerosine	5.00 - 5.125	4.875- 5.00	4.875- 5.00
47 w.w. kerosine	5.125- 5.25	5.00 - 5.125	5.00 - 5.125
Other districts:			
45 w.w. kerosine	4.75 - 4.875	4.75 - 4.875	4.75 - 4.875
46 w.w. kerosine	4.875- 5.00	4.875- 5.00	4.875- 5.00
47 w.w. kerosine	5.00 - 5.125	5.00 - 5.125	5.00 - 5.125

OKLAHOMA (Prices represent majority of quotations or sales, f.o.b. Oklahoma refineries)

41-43 w.w. kerosine	3.625- 3.75	3.50 - 3.625	3.50 - 3.625
42-44 w.w. kerosine	3.75 - 3.875	3.625- 3.75	3.625- 3.75

KANSAS (F.o.b. refinery Kansas destination)

41-43 w.w. kerosine	3.75	3.75	3.625- 3.75
42-44 w.w. kerosine	3.875	3.875	3.75 - 3.875

†**NORTH TEXAS** (Prices represent majority of quotations or sales, f.o.b Wichita Falls district for shipment to Texas and New Mexico destinations; Group 3 prices quoted on northern shipments)

41-43 w.w. kerosine	3.625- 3.75	3.50 - 3.625	3.50 - 3.625

†**EAST TEXAS** (Prices represent majority of quotations or sales, f.o.b. East Texas refinery for unrestricted shipment unless otherwise noted)

41-43 w.w. kerosine	*3.50 - 3.625	*3.50	*3.50

*Nominal.

NORTH LOUISIANA (Prices represent majority of quotations or sales, f.o.b. Louisiana refineries, for shipment within Louisiana and into Arkansas)

41-43 w.w. kerosine	3.75 - 4.00	3.75 - 4.00	3.75 - 3.875

ARKANSAS (Prices represent majority of quotations or sales, f.o.b. Arkansas refineries, for shipment within Arkansas and into Louisiana)

41-43 w.w. kerosine	*4.00 - 4.25	*4.00 - 4.25	*4.00 - 4.25

*Only one refiner quoting.

CALIFORNIA (F.o.b. California refineries)

38-40 w.w. kerosine	4.00 - 5.00	4.00 - 5.00	4.00 - 5.00

Gas and Fuel Oils

WESTERN PENNA. (Prices represent majority of quotations or sales)

Bradford-Warren:			
36-40 fuel oil	4.50 - 4.625	4.50 - 4.625	4.50 - 4.625
Other districts: (Excluding Pittsburgh District Prices)			
36-40 fuel oil	4.50 - 4.625	4.50 - 4.625	4.50 - 4.625

OKLAHOMA (Prices represent majority of quotations or sales, f.o.b. Oklahoma refineries)

No. 1 white fuel oil	3.625	3.50	3.375- 3.50
No. 1 straw fuel oil	3.375- 3.50	3.375	3.25 - 3.375
No. 2 straw fuel oil	3.25 - 3.50	3.25 - 3.50	3.25 - 3.375
No. 2 dark fuel oil	3.25 - 3.375	3.25 - 3.375	3.125- 3.25
U. G. I. gas oil	2.75	2.50 - 2.625	2.50 - 2.625

(*Continued on next page*)

REFINERY TANK CAR MARKETS

Prices in cents per gallon, tank car lots, except where otherwise noted. Inter-refinery and export prices not included. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude.

Oklahoma (cont'd)

	Dec. 7	Nov. 30	Nov. 23
Fuel Oils: (Prices per barrel of 42 U. S. gallons)			
28-30 zero	3.25	3.125– 3.25	3.00 – 3.125
28-30	$1.10	$1.05 –$1.10	$1.05 –$1.10
24-26	*$0.775–$0.825	$0.775–$0.80	$0.775–$0.80
18-22	*$0.75 –$0.80	$0.75 –$0.775	$0.75 –$0.775
14-16	$0.675–$0.70	$0.675–$0.70	$0.65 –$0.675

KANSAS (F.o.b. refinery, Kansas destination)

No. 1 p.w. fuel oil	3.625– 3.875	3.625– 3.875	3.625– 3.75
18-22 fuel oil (per bbl.)	$0.75 –$0.80	$0.75 –$0.80	$0.75 –$0.80
10-14 fuel oil (per bbl.)	$0.725–$0.75	$0.725–$0.75	$0.725–$0.75

NORTH TEXAS (Prices represent majority of quotations or sales, f.o.b. Wichita Falls district for shipment to Texas and New Mexico; Group 3 prices quoted on northern shipments).

No. 1 straw, fuel oil	*3.50	*3.375	*3.25 – 3.375
No. 1 white, fuel oil	*3.625	3.50	3.375– 3.50
U.G.I. gas oil	2.625– 2.75	2.50 – 2.625	2.50 – 2.625
No. 2 fuel oil	*3.375	*3.25 – 3.375	*3.25
24-26 fuel oil (per bbl.)	$0.725–$0.75	$0.725–$0.75	$0.725–$0.75
18-22 fuel oil (per bbl.)	$0.675–$0.70	$0.65 –$0.675	$0.65 –$0.675

*Nominal.

WEST TEXAS (Prices represent majority of quotations or sales, f.o.b. West Texas refineries for unrestricted shipment unless otherwise noted).

No. 2 fuel oil	*3.375	*3.25 – 3.375	*3.25
18-22 fuel oil (per bbl.)	$0.675–$0.70	$0.675–$0.70	$0.675–$0.70

*Nominal.

EAST TEXAS (Prices represent majority of quotations or sales, f.o.b. East Texas refineries for unrestricted shipment unless otherwise noted)

No. 1 white, fuel oil	*3.50	*3.375– 3.50	*3.375
U.G.I. gas oil	*2.50 – 2.625	*2.50 – 2.625	2.50 – 2.625
No. 2 fuel oil	*3.375	*3.25 – 3.375	*3.125– 3.25
24-26 fuel oil (per bbl.)	*$0.675–$0.70	*$0.65 –$0.675	$0.65 –$0.675
20-24 fuel oil (per bbl.)	*$0.65 –$0.675	*$0.65	$0.65

*Nominal.

NORTH LOUISIANA (Prices represent majority of quotations or sales, f.o.b. Louisiana refineries, for shipment within Louisiana and into Arkansas)

No. 2 fuel oil	3.375– 3.50	3.375– 3.50	3.25 – 3.375
U.G.I. gas oil	2.625	2.625	2.625
20-24 fuel oil (per bbl.)	$1.05 –$1.10	$1.05 –$1.10	$1.05 –$1.10
16-20 fuel oil (per bbl.)	$0.95 –$1.00	$0.95 –$1.00	$0.95 –$1.00
10-14 fuel oil (per bbl.)	$0.70 –$0.75	$0.70 –$0.75	$0.70 –$0.75

ARKANSAS (Prices represent majority of quotations or sales, f.o.b. Arkansas refineries, for shipment within Arkansas and into Louisiana)

No. 2 fuel oil	*3.75	*3.75	*3.50
28-30 gas oil, zero	*3.50	*3.50	*3.25
20-24 fuel oil (per bbl.)	*$0.825–$0.875	$0.825–$0.875	$0.825–$0.875
16-20 fuel oil (per bbl.)	*$0.725–$0.775	$0.725–$0.775	$0.725–$0.775
10-14 fuel oil (per bbl.)	$0.60 –$0.65	$0.60 –$0.65	$0.60 –$0.65

*Only one refiner quoting.

CALIFORNIA

San Joaquin Valley, per bbl.:			
Grade C fuel oil	$0.60 –$0.75	$0.60 –$0.75	$0.60 –$0.75
Diesel fuel oil	$0.90 –$1.47	$0.90 –$1.47	$0.90 –$1.47
Stove distillate	$1.25 –$1.89	$1.25 –$1.89	$1.25 –$1.89
Los Angeles, per bbl.:			
Grade C fuel oil	$0.65 –$0.95	$0.65 –$0.95	$0.65 –$0.95
Diesel fuel	$0.95 –$1.47	$0.95 –$1.47	$0.95 –$1.47
Stove distillate	$1.25 –$1.89	$1.20 –$1.89	$1.20 –$1.89
San Francisco, per bbl.:			
Grade C fuel oil	$1.00	$1.00	$1.00
Diesel fuel	$1.68	$1.68	$1.68
Stove distillate	$2.10	$2.10	$2.10

Neutral Oils

WESTERN PENNA. (Prices represent majority of quotations or sales)

Viscous Neutrals (Viscosity at 70° F.)

200 Vis. (180 at 100°) No. 3 color, 420-425 flash:			
0 pour test	25.00 –25.50	25.00 –25.50	25.00 –25.50
10 pour test	24.00 –24.50	24.00 –24.50	24.00 –24.50
15 pour test	23.50 –24.00	23.50 –24.00	23.50 –24.00
25 pour test	22.50 –23.00	22.50 –23.00	22.50 –23.00
180 Vis. (165 at 100) No. 3 color, 410-415 flash:			
25 pour test	21.50 –22.00	21.50 –22.00	21.50 –22.00
150 Vis. (143 at 100) No. 3 color, 400-405 flash:			
0 pour test	21.50 –22.00	21.50 –22.00	21.50 –22.00
10 pour test	20.50 –21.00	20.50 –21.00	20.50 –21.00
15 pour test	20.00 –20.50	20.00 –20.50	20.00 –20.50
25 pour test	19.00 –19.50	19.00 –19.50	19.00 –19.50

SOUTH TEXAS (Quotations of majority of sellers for tank car lots, f.o.b. South Texas refineries, for domestic shipment)

Vis. Color Pale Oils:	(*Viscosity at 100° F.; pour test 0*)		
100 No. 1½-2½	5.00	5.00	5.00
200 No. 2-3	7.00	7.00	7.00
300 No. 2-3	7.50	7.50	7.50
500 No. 2½-3½	8.50	8.50	8.50
750 No. 3-4	9.00	9.00	9.00
1200 No. 3-4	9.50	9.50	9.50
2000 No. 4	10.00	10.00	10.00

	Dec. 7	Nov. 30	Nov. 23
Red Oils:			
200 No. 5-6	7.00	7.00	7.00
300 No. 5-6	7.50	7.50	7.50
500 No. 5-6	8.50	8.50	8.50
750 No. 5-6	9.00	9.00	9.00
1200 No. 5-6	9.50	9.50	9.50
2000 No. 5-6	10.00	10.00	10.00

Note: South Texas red oil prices shown above cover oils with green cast; blue cast red oils are slightly lower in some cases.

MID-CONTINENT (Viscosity at 100° F.; F.o.b. Tulsa basis. Prices represent majority of quotations or sales)

(0 to 10 Pour Point)

Pale Oils Vis. Color			
60-85—No. 2	5.25	5.25	5.25
86-110—No. 2	5.75	5.75	5.75
150—No. 3	8.50	8.50	8.50
180—No. 3	9.50	9.50	9.50
200—No. 3	10.00	10.00	10.00
250—No. 3	11.00	11.00	11.00
280—No. 3	12.00	12.00	12.00
300—No. 3	12.50	12.50	12.50
Red Oils:			
180—No. 5	8.50	8.50	8.50
200—No. 5	9.00	9.00	9.00
250—No. 5	10.00	10.00	10.00
280—No. 5	11.00	11.00	11.00
300—No. 5	11.25	11.25	11.25

Note: Viscous and non-viscous oils, 15 to 25 pour point are generally quoted 0.5c under 0 to 10 pour point oils. Viscous oils (150-300 vis.), No. 4 color, are generally quoted 0.5c above No. 5 color oils.

CHICAGO (F.o.b. Chicago District refineries) (Vis. at 100° F.)

Pale Oils *15 to 30 pour point: Vis. Color			
60-85—No. 2	6.50	6.50	6.50
86-110—No. 2	7.00	7.00	7.00
150—No. 3	8.50	8.50	7.50
180—No. 3	9.00	9.00	8.00
200—No. 3	9.50	9.50	8.50
250—No. 3	10.50	10.50	9.50
Red Oils *15 to 30 Pour Point:			
180—No. 5	8.50	8.50	7.50
200—No. 5	8.50	8.50	7.50
250—No. 5	9.50	9.50	8.50
280—No. 5	11.50	11.50	10.50
300—No. 5	12.00	12.00	11.00

*Oils with 0-10 pour point are quoted at 0.5c higher. To obtain prices delivered in Chicago add 0.25c per gal.

CALIFORNIA (F.o.b. California refineries; Viscosity at 100° F.)

Neutral oils not now being quoted.

Cylinder Stocks

MID-CONTINENT (F.o.b. Tulsa basis. Prices represent majority of quotations or sales)

Bright Stocks:			
190-200 Vis. at 210° D	20.00	20.00	20.00
150-160 Vis. at 210° D:			
0 to 10 pour test	17.00	17.00	17.00
10 to 25 pour test	16.50	16.50	16.50
25 to 40 pour test	16.00	16.00	16.00
150-160 Vis. at 210° E	16.00	16.00	16.00
120 Vis. at 210° D:			
0 to 10 pour test	16.00	16.00	16.00
10 to 25 pour test	15.50	15.50	15.50
25 to 40 pour test	15.00	15.00	15.00
600 Stm. Rfd. Dark Green	5.00 – 5.75	5.00 – 5.75	5.00 – 5.75
600 Stm. Rfd. Olive Green	6.50 – 7.50	6.50 – 7.50	6.50 – 7.50
631 Steam Refined	*13.00	*13.00	*13.00
Black Oil	3.25 – 3.375	3.25 – 3.375	3.25 – 3.375

*Only one refiner quoting.

CHICAGO (F.o.b. Chicago district refineries) (Viscosity at 210°)

Unfiltered Steam Refined:			
140	9.00	9.00	9.00
160	10.00	10.00	10.00
200	11.00	11.00	11.00
Bright stocks, 160 vis. at 210 No. 8 color:			
0 to 10 pour point	18.75	18.75	18.75
15 to 25 pour point	18.25	18.25	18.25
30 to 40 pour point	17.75	17.75	17.75
E filtered Cyl. Stock	14.50	14.50	14.50

To obtain prices delivered in Chicago, add 0.25c per gal.

WESTERN PENNA. (A.S.T.M. tests; prices represent majority of quotations or sales, to car unloaders)

600 stm. rfd. filterable	13.00 –13.50	13.00 –13.50	13.00 –13.50
650 steam refined	14.50 –15.00	14.00 –14.50	14.00 –14.50

(Continued on next page)

REFINERY TANK CAR MARKETS

Prices in cents per gallon, tank car lots, except where otherwise noted. Inter-refinery and export prices not included. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude.

Cylinder Stocks (cont'd)

Western Pennsylvania (cont'd)

	Dec. 7	Nov. 30	Nov. 23
600 flash	15.50 -16.00	15.00 -15.50	15.00 -15.50
630 flash	17.00 -17.50	17.00 -17.50	17.00 -17.50
600 Warren E	16.00 -16.50	16.00 -16.50	16.00 -16.50
Bright stock, 145-155 vis. at 210°, 540-550 flash, No. 8 color:			
10 pour test	23.50 -24.00	23.50 -24.00	23.50 -24.00
15 pour test	22.50 -23.00	22.50 -23.00	22.50 -23.00
20 pour test	21.50 -22.00	21.50 -22.00	21.50 -22.00
25 pour test	20.50 -21.00	20.50 -21.00	20.50 -21.00

Petrolatums

WESTERN PENNA. (Per pound, in barrels, carload lots, f.o.b. Penna. refineries. In tank cars, 0.5c per pound less. Quotations by majority of refiners making petrolatums)

Snow White	6.625	6.625	6.625
Lily White	5.625	5.625	5.625
Cream White	4.625	4.625	4.625
Light Amber	2.75	2.75	2.75
Amber	2.50	2.50	2.50
Red	2.00 – 2.125	2.00 – 2.125	2.00 – 2.125

Wax

	Dec. 7	Nov. 30	Nov. 23
WESTERN PENNA. (Prices represent majority of quotations or sales, per pound, f.o.b. New York)			
122-124 wh. crude scale, A.m.p.	2.40 – 2.45	2.40 – 2.45	2.40 – 2.45
124-126 wh. crude scale, A.m.p.	2.45 – 2.50	2.45 – 2.50	2.45 – 2.50
OKLAHOMA (Prices represent majority of quotations or sales, per pound in barrels; in a few instances, per pound in burlap bags; f.o.b. Oklahoma refineries)			
124-126 wh. crude scale, A.m.p.	2.625	2.625	2.625
CHICAGO (Quotations of majority of sellers f.o.b. Chicago district refineries, in bags, carload lots. Melting points are E.M.P. (A.S.T.M.) methods; add 3° F. to convert into A.m.p.)			
Fully refined:			
122-124	4.65 – 4.75	4.65 – 4.75	4.65 – 4.75
125-127	4.90 – 5.00	4.90 – 5.00	4.90 – 5.00
127-129	5.05 – 5.15	5.05 – 5.15	5.05 – 5.15
130-132	*5.45 – 5.55	*5.45 – 5.55	*5.45 – 5.55
132-134	*5.70 – 5.80	*5.70 – 5.80	*5 70 – 5.80
135-137	*6.45 – 6.55	*6.45 – 6.55	*6.45 – 6.55

*Same prices quoted in bags or slabs loose.

MID-WESTERN TANK CAR MARKETS

Prices in cents per gallon, except where otherwise noted, in tank car lots, representing majority of quotations or sales made by Chicago sellers, from legally produced crude to jobbers on Group 3 (Oklahoma) freight basis, although shipments may originate in other South-western or Mid-western refining districts. Prices do not include state or federal taxes.

Gasoline

U.S. Motor gasoline:	Dec. 7	Nov. 30	Nov. 23
62 octane and below	4.50 – 4.875	4.625– 4.875	4.625– 4.875
63-67 octane	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25
68-70 octane (regular)	5.50 – 5.875	5.50 – 5.875	5.50 – 5.875
60-62, 400 e.p.	4.625– 4.875	4.625– 4.875	4.625– 4.875
64-66, 375 e.p.	5.00 – 5.125	5.00 – 5.125	5.00 – 5.125
68-70, 350-360 e.p.	5.125– 5.25	5.125– 5.25	5.125– 5.25

Kerosine

41-43 w.w.	3.625– 3.75	3.50 – 3.625	3.50 – 3.625
42-44 w.w.	3.75 – 3.875	3.625– 3.75	3.625– 3.75

Fuel and Gas Oils

Domestic:			
No. 1 prime white	3.625	3.50 – 3.625	3.375– 3.50
No. 1 straw	3.375– 3.50	3.375– 3.50	3.25 – 3.375

	Dec. 7	Nov. 30	Nov. 23
No. 2 straw	3.25 – 3.375	3.25 – 3.375	3.125– 3.25
No. 2 dark	3.125– 3.25	3.125– 3.25	3.00 – 3.125
No. 3	3.125– 3.25	3.125– 3.25	3.00 – 3.125
No. 4 (per bbl.)	$0.95 –$1.00	$0.95 –$1.00	$0.95 –$1.00
No. 5 (per bbl.)	$0.75 –$0.80	$0.75 –$0.80	$0.75 –$0.80
Industrial:			
No. 4 (per bbl.)	$0.85 –$0.90	$0.85 –$0.90	$0.85 –$0.90
No. 5 (per bbl.)	$0.65 –$0.70	$0.65 –$0.70	$0.65 –$0.675
No. 6 (per bbl.)	$0.60 –$0.65	$0.60 –$0.65	$0.60 –$0.625
U.G.I. gas oil	2.50 – 2.625	2.50 – 2.625	2.50 – 2.625

Naphtha and Solvent

(Tank car prices quoted f.o.b. Group 3 by majority of Chicago sellers)

Stoddard solvent	6.875	6.875	6.875
V. M. & P. naphtha	7.375	7.375	7.375
Cleaners' naphtha	7.375	7.375	7.375
Mineral spirits	6.375	6.375	6.375
Rubber solvent	7.375	7.375	7.375
Lacquer diluent	8.375	8.375	8.375

DAILY GASOLINE PRICES

Daily range of gasoline prices (cents per gallon) in tank cars, as reported in PLATT'SOILGRAM, (Week Ended Dec. 4, 1936)

	Nov. 30	Dec. 1	Dec. 2	Dec. 3	Dec. 4
U. S. Motor, 62 octane and below:					
East Texas	†4.625	†4.625	†4.625	†4.625	†4.625
*North Texas	4.75	4.75	4.75	4.75	4.75
West Texas	4.75	4.75	4.75	4.75	4.75
Oklahoma	4.75	4.75	4.75	4.75	4.75
Mid-Western (Group 3 basis)	4.625– 4.875	4.50 – 4.875	4.50 – 4.875	4.50 – 4.875	4.50 – 4.875
U. S. Motor, 63-67 octane:					
*North Texas	5.125– 5.25	5.125– 5.25	5.125– 5.25	5.125– 5.25	5.125– 5.25
West Texas	5.125– 5.25	5.125– 5.25	5.125– 5.25	5.125– 5.25	5.125– 5.25
Oklahoma	5.125– 5.375	5.125– 5.375	5.125– 5.375	5.125– 5.375	5.125– 5.375
Mid-Western (Group 3 basis)	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25
U. S. Motor, 68-70 octane (regular)					
*North Texas	5.75	5.75	5.75	5.75	5.75
West Texas	5.75	5.75	5.75	5.75	5.75
Oklahoma	5.75	5.75	5.75	5.75	5.75
Mid-Western (Group 3 basis)	5.50 – 5.875	5.50 – 5.875	5.50 – 5.875	5.50 – 5.875	5.50 – 5.875
Motor Gasoline, 60-64 octane					
New York harbor	6.25	6.25	6.25	6.25	6.25
Philadelphia district	6.50	6.50	6.50	6.50	6.50
Baltimore district	6.50	6.50	6.50	6.50	6.50
Motor Gasoline, 65 octane & above					
New York harbor	6.50	6.50	6.50	6.50	6.50
Philadelphia district	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75
Baltimore district	6.75	6.75	6.75	6.75	6.75
U. S. Motor Gasoline, 58-62°					
Bradford-Warren (Western Penna.)	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625
Other districts (Western Penna.)	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625
Motor Gasoline, Minimum 60 octane					
Bradford-Warren (Western Penna.)	7.00 – 7.125	7.00 – 7.125	7.00 – 7.125	7.00 – 7.125	7.00 – 7.125
Other districts (Western Penna.)	7.00 – 7.125	7.00 – 7.125	7.00 – 7.125	7.00 – 7.125	7.00 – 7.125
Motor Gasoline, Minimum 65 octane					
Bradford-Warren (Western Penna.)	7.25 – 7.375	7.25 – 7.375	7.25 – 7.375	7.25 – 7.375	7.25 – 7.375
Other districts (Western Penna.)	7.25 – 7.375	7.25 – 7.375	7.25 – 7.375	7.25 – 7.375	7.25 – 7.375

*For shipment to Texas and New Mexico destinations; Group 3 prices are quoted on northern shipments.
†Nominal.

TANK WAGON, SERVICE STATION MARKETS

Tax column includes 1c federal tax, state gasoline tax, also city and county taxes as indicated in footnotes, and inspection fees, as shown in general footnote. These prices in effect Dec. 7, 1936, as posted by principal marketing companies at their headquarters offices, but subject to later corrections

S. O. New Jersey

ESSOLENE

	Consumer Tank Car	Dealer T.W.	Taxes	Posted S.S.	Kerosine T.W.
Atlantic City, N. J.	7	8.5	4	*	8
Newark, N. J.	7	8.5	4	*	7.5
Annapolis, Md.	8.1	9.6	5	*	10
Baltimore, Md.	7.5	9	5	*	8
Cumberland, Md.	9.1	11.6	5	*	10
Washington, D. C.	7.5	9	3	15.5	9
Danville, Va.	8.7	11.2	6	20.7	12.9
Norfolk, Va.	7.5	10	6	*	11.3
Petersburg, Va.	7.8	10.3	6	19.8	11.7
Richmond, Va.	7.8	10.3	6	19.8	11.7
Roanoke, Va.	9	11.5	6	*	12.9
Charleston, W. Va.	8.3	10.8	5	*	12.6
Parkersburg, W. Va.	7.6	10.1	5	*	11.2
Wheeling, W. Va.	8.5	10	5	*	12.2
Charlotte, N. C.	8.9	11.4	7	*	12.6
Hickory, N. C.	9.4	11.9	7	*	13
Mt. Airy, N. C.	9.2	11.7	7	*	12.8
Raleigh, N. C.	8.5	11	7	*	12.1
Salisbury, N. C.	9	11.5	7	*	12.7
Charleston, S. C.	8.5	10	7	20.5	11.1
Columbia, S. C.	8.5	11	7	21.5	12.1
Spartanburg, S. C.	9.2	11.7	7	22.2	12.9

*S. O. New Jersey transferred stations to dealers; no prices available.

Price basis to undivided dealers: Dealer t.w. price less 0.5c per gal.

Price basis to commercial consumers: Effective Nov. 2, 1936, in New Jersey, Maryland, District of Columbia, and small portions of Virginia and West Virginia, to contract and non-contract accounts, taking following deliveries at one time, by hose connection, prices based on consumer tank car price in effect at time and place of delivery: 500 gals. or more, 0.5c over t.c. price; less than 500 gals., 0.75c over; accounts not taking deliveries by hose connection, 1c over t.c.

Effective Feb. 11, 1935, in North and South Carolina, and greater portions of Virginia and West Virginia, the following differentials apply above posted tank car price, on yearly purchases: up to 35,999 gals., 2.5c over t.c.; 36,000 to 119,999 gals., 2c; 120,000 to 239,999 gals., 1.5c; 240,000 to 479,999 gals., 1c; and over 480,000 gals., 0.5c. Non-contract accounts, 2.5c over posted t.c. price.

Kerosine Discount: 1c off t.w. price for 25 gals. or more, under contract thru territory (Baltimore City contract not necessary) except no discount in state of New Jersey.

Socony-Vacuum Oil Co., Inc.

(S. O. New York Division)

SOCONY MOBILGAS

	"Split" Dealer T.W.	Taxes	Total "Split" Dealer T.W.	†S.S.	Kerosine T.W.
Metropolitan N. Y. City: Boroughs of Manhattan, Bronx and Brooklyn (Kings and Queens)	8.7	*4	12.7	...	7.25
Borough of Richmond (Staten Is.)	9	*4	13	...	7.25
Albany, N. Y.	8.7	4	12.7	...	7.75
Binghamton, N. Y.	10	4	14	...	8.5
Buffalo, N. Y.	9.5	4	13.5	...	8.25
Jamestown, N. Y.	10	4	14	...	8.25
Plattsburg, N. Y.	9.7	4	13.7	...	8.75
Rochester, N. Y.	9.5	4	13.5	...	8.25
Syracuse, N. Y.	9.5	4	13.5	...	8.5
Danbury, Conn.	9	4	13	...	8
Hartford, Conn.	8.9	4	12.9	...	7
New Haven, Conn.	8.8	4	12.8	...	7.5
Bangor, Me.	10	5	15	...	6.5
Portland, Me.	9.5	5	14.5	...	7.75
Boston, Mass.	8.5	4	12.5	...	7.5
Concord, N. H.	10.5	5	15.5	...	8.5
Lancaster, N. H.	11.5	5	16.5	...	9.5
Manchester, N. H.	10	5	15	...	8
Providence, R. I.	8.5	3	11.5	...	7.25
Burlington, Vt.	9.7	5	14.7	...	8.75
Rutland, Vt.	10	5	15	...	8.5

*Plus 2% city sales tax computed at time of each sale.

†Socony-Vacuum transferred stations to dealers; no prices available.

Price basis to undivided dealers: 0.5c less than "split" dealer t.w.

Price basis to commercial consumers: Effective about Nov. 15, 1936 in New York and New England, for tank wagon delivery: monthly purchases of 25,000 gals. or over, pay consumer tank car price at point of delivery, plus 0.5c gal.; monthly purchases of 5,000 to 25,000 gals., pay undivided dealer tank wagon price at point of delivery; monthly purchases of less than 5,000 gals., pay divided dealer tank wagon price at point of delivery. Private consumers pay undivided dealer tank wagon price at point of delivery, plus 2c gal.

Atlantic Refining

ATLANTIC WHITE FLASH PLUS GASOLINE

	Dealer T.W.	Taxes	Total Dealer T.W.	S.S.	Kerosine T.W.
Philadelphia, Pa.	8.5	5	13.5	16	9.5
Pittsburgh, Pa.	11	5	16	19.5	10
Allentown, Pa.	9	5	14	**	10
Erie, Pa.	10	5	15	**	10
Scranton, Pa.	9	5	14	**	10
Altoona, Pa.	11	5	16	**	10
Dover, Del.	9	5	14	**	10
Wilmington, Del.	8	5	13	**	10
Boston, Mass.	8.5	4	12.5	**	7
Springfield, Mass.	9	4	13	**	7
Worcester, Mass.	9.5	4	13.5	**	7.75
Fall River, Mass.	8.5	4	12.5	**	7
Hartford, Conn.	8.9	4	12.9	**	7
New Haven, Conn.	8.8	4	12.8	**	7.5
Providence, R. I.	8.5	3	11.5	**	7
Atlantic City, N. J.	8.5	4	12.5	**	9
Camden, N. J.	8.5	4	12.5	**	8
Trenton, N. J.	8.5	4	12.5	**	8
Annapolis, Md.	9.6	5	14.6	**	9.5
Baltimore, Md.	9	5	14	**	8
Hagerstown, Md.	10	5	15	**	10
Richmond, Va.	10.3	6	16.3	**	11.7
Wilmington, N. C.	10.1	7	17.1	**	11.3
Brunswick, Ga.	10.5	7	17.5	**	*12.5
Jacksonville, Fla.	8.5	8	16.5	**	11.5

*Georgia has kerosine tax of 1c per gal., not included in above price.

**Atlantic Refining transferred stations to dealers; no prices available.

Price basis to undivided dealers: Dealer t.w. less 0.5c per gal.

Price basis to commercial consumer: Effective Nov. 5, 1936, on yearly gasoline purchases to contract accounts taking t.w. deliveries, based on posted tank car prices plus following amounts: 2,500 to 100,000 gals., 1c over t.c.; 100,000 gals., and over, 0.5c. Non-contract accounts taking 50 gals. or over at one time pay dealer t.w. price.

S. O. Ohio

SOHIO X-70 GASOLINE

	Consumer T.W.	Tax	Total Consumer T.W.
Ohio Statewide	12.5	5	17.5 ‡ *13.5
Counties below statewide gasoline schedule: Ashtabula, Butler, Champaign, Clarke, Clermont, Columbiana, Darke, Defiance, Delaware, Fayette, Fairfield, Franklin, Greene, Hamilton, Jefferson, Knox, Licking, Lucas, Madison, Mahoning, Marion, Miami, Montgomery, Morrow, Muskingum, Pickaway, Preble, Ross, Trumble and Warren	11.5	5	16.5
Paulding	11	5	16

RENOWN

(Third Grade Gasoline)

Ohio Statewide	12	5	17 ‡
Counties below statewide gasoline schedule: Butler, Clermont, Darke, Hamilton, Greene, Miami, Montgomery, Preble and Warren:	11.5	5	16.5
Ashtabula, Champaign, Clarke, Columbiana, Defiance, Delaware, Fairfield, Fayette, Franklin, Jefferson, Knox, Licking, Lucas, Madison, Mahoning, Marion, Morrow, Muskingum, Pickaway, Ross and Trumbull	11	5	16
Paulding	9	5	14
Counties above statewide schedule: Hocking and Summit	12.5	5	17.5

KEROSINE PRICES

(Off Statewide Level)

Kerosine prices are off statewide level in the following counties:

Gallia *13

Allen, Ashtabula, Auglaize, Champaign, Columbiana, Darke, Fulton, Geauga, Hancock, Hardin, Henry, Logan, Mahoning, Mercer, Portage, Preble, Putnam, Shelby, Summit, Trumbull, Union, Van Wert and Wyandotte *12.5

Defiance and Paulding *12

S. O. Ohio—Cont'd

Statewide Prices to Resellers & Agents

(These gasoline prices are based on low of Group 3, 68-70 octane, gasoline tank car market as published in Platt's Oilgram, to the nearest 0.5c).

Including Tax	†Undivided Accounts	Divided Accounts	**Authorized Agents
Sohio X-70	16	16.5	16.5
Renown (3rd grade)	15.5	16	16

‡Effective Sept. 16, 1936, S. O. Ohio began leasing service stations to dealers. No statewide s.s. price available although the company does post s.s. prices locally at points where it still operates stations.

Sales tax: Ohio's 3% sales tax, effective Jan. 27, 1935, is added "where assessable, to regular posted prices," S. O. Ohio says.

*Kerosine prices include 1c state tax.

†Excluding authorized agents.

**Excluding 0.5c rental.

Discounts to commercial contract tank wagon consumers only: on all motor gasolines, thru Ohio, effective Sept. 16, 1936, except counties mentioned hereafter, off posted t.w. price, on deliveries per month: 1,000 to 9,999 gals., 1.5c per gal.; 10,000 gals. and over, 2.5c. Under 1,000 gals., posted t.w. price. Single deliveries of less than 25 gals., on X-70 and Ethyl, 2c above consumers, t.w. price; Renown, 1c above. Q. D. A. is off statewide schedule in the following counties: Allen, Ashtabula, Auglaize, Columbiana, Darke, Defiance, Delaware, Franklin, Fulton, Hamilton, Hancock, Hardin, Henry, Jefferson, Knox, Logan, Lucas, Mahoning, Marion, Medina, Mercer, Pickaway, Putnam, Ross, Shelby, Trumbull, Union, Van Wert, Washington and Williams: for this information, write National Petroleum News.

Discounts on kerosine: to dealers and commercial consumers, 3c per gal. off t.w. price, any quantity.

S. O. Kentucky

CROWN GASOLINE

	T.W.	Taxes	Total T.W.	S.S.	Kerosine T.W.
Lexington, Ky.	12	6	18	20	11
Louisville, Ky.	12	6	18	20	10
Paducah, Ky.	10.5	6	16.5	**	8
Covington, Ky.	11.5	6	17.5	19.5	10.5
Jackson, Miss.	13	7	20	22	*12.5
Vicksburg, Miss.	12.5	7	19.5	**	*12.5
Birmingham, Ala.	13	*8	21	23	12
Mobile, Ala.	10	*9	19	21	11
Montgomery, Ala.	11.5	*9	20.5	21	*14
Macon, Ga.	13	7	20	22	*14
Atlanta, Ga.	13.5	7	20.5	22.5	*13
Augusta, Ga.	12.5	7	19.5	**	*12.5
Savannah, Ga.	11.5	7	18.5	20.5	*12.5
Jacksonville, Fla.	10	8	18	20	11.5
Miami, Fla.	11.5	8	19.5	21.5	12.5
Tampa, Fla.	10.5	8	19.5	20.5	11.5
Pensacola, Fla.	12.5	*9	21.5	23.5	10.5

KYSO

(Third Grade)

Lexington, Ky.	10.5	6	16.6	18	....
Louisville, Ky.	10.5	6	16.5	18	....
Paducah, Ky.	7.5	6	13.5	**	....
Covington, Ky.	10	6	16	17.5	....
Jackson, Miss.	11.5	7	18.5	20	....
Vicksburg, Miss.	9.5	7	16.5	**	....
Birmingham, Ala.	11	*8	19	20	....
Mobile, Ala.	8	*9	17	18	....
Montgomery, Ala.	8.5	*9	17.5	18	....
Atlanta, Ga.	10.5	7	17.5	18	....
Augusta, Ga.	9	7	16	**	....
Macon, Ga.	10	7	17	17.5	....
Pensacola, Fla.	10.75	*9	19.75	21	....

Dealer Discount: off posted s.s. price, on Crown and Crown Ethyl gasolines to "undivided" dealers 4c; on Kyso, 3c. To "divided" dealers: Crown and Ethyl, 3.5c, and Kyso, 2.5c, all effective on or about Jan. 1, 1934.

Discounts to tank wagon consumers: all single deliveries of 50 gals. or less, get posted s.s. price: all single deliveries of 50 gals. or more, to be billed at posted t.w. price, less following discounts, off posted t.w. price: Ethyl and Crown gasoline, 50 to 2,999 gals. monthly, 1.5c; Kyso, 1c; 3,000 to 24,999 gals., Ethyl and Crown, 2c; Kyso, 1.5c; 25,000 gals. or more, Ethyl and Crown, 3c; and Kyso, 2.5c.

Taxes: in the tax column is included these city and county gasoline taxes at the following points: Mobile, 2c city; Birmingham, 1c city; Montgomery, 1c city and 1c county, Pensacola, 1c city. Georgia and Mississippi kerosine prices include 1c state tax. Montgomery kerosine price includes 1c city tax.

**S. O. Kentucky transferred stations to dealers; no prices available.

Above prices include these inspection fees on both gasoline and kerosine, per gallon, figured on basis of 50 gallons per barrel:

Alabama, 1/40c on gasoline, 1/2c on kerosine; Arkansas, 1/5c per gal. in a single barrel, 1/20c per gal. in bulk; Florida, 1/8c; Illinois, 3/100c; Indiana, 1/2c per gal. n a single barrel; 3/10c per gal. in lots of 2 to 10 bbls., 1/5c for 10 to 50 bbls., 2/25c for over 50 bbls.; Kansas, 1/50c, (3/50c can be charged to meet inspection department expenses); Louisiana, 1/32c; Minnesota, 1/25c; Missouri, 3/100c; Nebraska, 3/100c; Nevada, gasoline, 1/20c; North Carolina, 1/4c; North Dakota, 1/20c; Oklahoma, 2/25c per gal., in lots of more than 50 bbls., 1/5c in lots less than 50 bbls.; South Carolina, 1/8c; South Dakota, 1/10c; Tennessee, 2/5c; and Wisconsin, 1/25c.

Kerosine inspection fee only: Iowa, 2/25c; Michigan, 4/5c per gal. for first 2 bbls.; 3/5c for next 3; 2/5c for next 5; 3/10c for next 15, and 1/5c per gal. in lots over 25 bbls.

TANK WAGON, SERVICE STATION MARKETS

Tax column includes 1c federal tax, state gasoline tax, also city and county taxes as indicated in footnotes, and inspection fees, as shown in general footnote. These prices in effect Dec. 7, 1936, as posted by principal marketing companies at their headquarters offices, but subject to later corrections

S. O. Indiana

	Red Crown Tax	Total T.W.	Dealer Prices Red Crown	Stanolind	Kerosine T.W.
Chicago, Ill.	4	15.4	13.4	13.4	9.5
Decatur, Ill.	4	15.4	13.9	13.9	9.5
Joliet, Ill.	4	14.5	13.9	13	9.5
Peoria, Ill.	4	15.4	13.9	13.9	9.5
Quincy, Ill.	4	15.2	13.7	13.7	9.3
Indianapolis, Ind.	5	17.1	15.6	15.6	‡13
Evansville, Ind.	5	16.9	15.4	15.1	‡14
South Bend, Ind.	5	17.3	15.8	16	‡13
Detroit, Mich.	4	14.5	13	13.0	8.8
Grand Rapids, Mich.	4	15.4	13.9	13.9	9.3
Saginaw, Mich.	4	15.6	14.1	14.1	10.1
Green Bay, Wis.	5	17.1	15.6	15.6	10.2
Milwaukee, Wis.	5	16.7	15.2	13.4	9.8
La Crosse, Wis.	5	16.8	15.3	15.3	9.9
Minneapolis-St. Paul.	4	15.8	14.3	14.3	9.9
Duluth, Minn.	4	16.2	14.7	14.7	10.3
Mankato, Minn.	4	15.8	14.3	14.3	9.9
Des Moines, Ia.	4	15.2	13.7	13.3	9.3
Sioux City, Ia.	4	15.4	13.9	13.9	9.5
Davenport, Ia.	4	15.4	13.9	13.9	9.5
Mason City, Ia.	4	15.6	14.1	12.4	9.7
St. Louis, Mo.	†4	15.1	13.6	13.6	9.2
Kansas City, Mo.	†4	14.8	13.3	13.3	8
St. Joseph, Mo.	†4	14.8	13.3	13.3	8.9
Fargo, N. D.	4	16.8	15.3	15.3	10.9
Minot, N. D.	4	18.0	16.5	16.5	12.1
Huron, S. D.	*5	17.3	15.8	15.8	10.4
Wichita, Kans.	4	14.3	11.5	10.5	8.0

†St. Louis, Kansas City and St. Joseph prices include 1c city tax. ‡Includes 4c state tax.

*South Dakota gasoline and kerosine prices include 0.1c for sales tax.

Note: Effective July 1, 1935 in Iowa, and Sept 11, 1936, in Indiana, Kansas, Michigan, Minnesota, Missouri, South Dakota and Wisconsin, and effective Oct. 1, 1936 in Illinois and North Dakota, S. O. Indiana discontinued posting service station prices, posting only a t.w. and a dealer price.

Discount to commercial consumers: Effective Jan. 1, 1935, thru territory, except Michigan effective Feb. 1, on purchases per month, discount off t.w. prices; all gasolines, 25 to 1,000 gals., at t.w. price; 1,000 gals., or more, 1.5c off t.w. on Ethyl and Red Crown, and 0.5c on Stanolind. Minimum delivery is 25 gals.

Subnormal Stanolind Points

Normally Stanolind tank wagon prices are 1c under normal Red Crown t.w. prices. Among subnormal points on Stanolind t.w. are these: Detroit, 13.5c; Des Moines, 14.1c; Mason City, 13.9c; Huron, 16c; and Wichita, 11.5c, all including state and federal taxes.

S. O. Nebraska

STANDARD RED CROWN GASOLINE

	Total T.W.	Taxes	Total T.W.	S.S.	Kerosine T.W.
Omaha, Neb.	11.8	6	17.8	19.8	9.5
McCook, Neb.	12.5	6	18.5	20.5	10.2
Norfolk, Neb.	12.2	6	18.2	20.2	9.9
North Platte, Neb.	12.6	6	18.6	20.6	10.3
Scottsbluff, Neb.	13.3	6	19.3	21.3	11

RELIANCE GASOLINE
(Third Grade)

Omaha, Neb.	10	6	16	16	....
McCook, Neb.	11.5	6	17.5	18.9	....
Norfolk, Neb.	11.2	6	17.2	19.2	....
North Platte, Neb.	11.6	6	17.6	19.6	....
Scottsbluff, Neb.	12.3	6	18.3	20.3	....

Discount to dealers: where service station gasoline prices are normal, resellers' allowance off service station prices are (*Maximum* over-all, including rent) as follows: Reliance 2½c; Standard Red Crown, and Solite with Ethyl, 3½c. Where service station gasoline prices are below normal, resellers' allowances are reduced one-half of the amount below normal, down to the following (*Minimum* over-all including rent): Reliance, 2c, Standard Red Crown and Solite with Ethyl, 3c.

Discounts to consumers: for tank wagon deliveries covered only by Standard Commercial Consumer Contract, effective January 1, 1935.

S. O. Louisiana

ESSOLENE

	Consumer Tank Car	Dealer T.W.	Taxes	Posted S.S.	Kerosine T.W.
Little Rock, Ark.	7.5	10	7.5	**	9
Alexandria, La.	7.5	10	8	**	* 9.5
Baton Rouge, La.	7	9.5	8	21	*11.5
New Orleans, La.	7	9.5	*10	23	*11
Lake Charles, La.	8	10.5	8	**	*10
Shreveport, La.	6.5	9	8	**	*10
Lafayette, La.	8	10.5	8	**	*12.5
Bristol, Tenn.	10	11.25	8	**	14.5
Chattanooga, Tenn.	9.5	12	8	**	11.5
Knoxville, Tenn.	10	12.5	8	**	14
Memphis, Tenn.	8	10.5	8	22	9.5
Nashville, Tenn.	9	11.5	8	**	10

*New Orleans gasoline tax includes 7c state, 1c federal, and 2c parish tax. Louisiana kerosine prices include 1c state tax; in addition New Orleans has 1c parish tax.

**S. O. Louisiana transferred stations to dealers; no prices available.

Price basis to dealers: Undivided dealers get dealer price, less 0.5c.

Price basis to commercial consumers: Effective Aug. 16, 1935 in Louisiana and Jan. 27, 1936 in Arkansas, contract accounts for motor fuel are billed at 2.5c per gal. above posted consumer tank car price, less following discounts payable at end of month: 3,001 to 10,000 gals., 0.5c; 10,001 to 20,000 gals., 1c; 20,001 to 40,000 gals., 1.5c; over 40,000 gals., 2c. In Tennessee, effective Feb. 11, 1935, commercial consumers are signed at the following differentials above posted t.c. price, on yearly purchases: up to 35,999 gals., 2.5c over t.c ; 36,000 to 119,999 gals., 2c; 120,000 to 239,999 gals., 1.5c; 240,000 to 479,999 gals., 1c; and over 480,000 gals., 0.5c. Non-contract customers are billed at 2.5c per gal. over posted t.c. price.

Humble Oil & Refining Co.

HUMBLE MOTOR FUEL

	*100% Dlr. T.W.	Taxes	Total *100% Dlr. T.W.	S.S.	Kerosine T.W.
Dallas, Tex.	8.5	5	13.5	17	8.5
Ft. Worth, Tex.	8.5	5	13.5	17	8.5
Houston, Tex.	9	5	14	18	8.5
San Antonio, Tex.	9	5	14	18	8.5

U. S. MOTOR FUEL
(Third Grade)

Dallas, Tex.	7	5	12	14
Ft. Worth, Tex.	7	5	12	14
Houston, Tex.	8	5	13	16
San Antonio, Tex.	8	5	13	16

*Price is t.w. price to contract dealers and commercial consumers. Price to open dealers is 0.5c above t.w. prices shown above.

Price basis to dealers: to contract dealers consumer accounts off posted retail price: when posted retail price, including all taxes on Esso motor fuel is: 19.1c per gal. and above discount is 4c; 19c to 18.1c, 3.5c, and 18c and below, 3c. Humble motor fuel, 17.1c and above, 4c; 17 to 16.1c, 3.5c; and 16c and below, 3c; U. S. motor fuel, 15.1c and above, 3c; 15 to 14.1c, 2.5c; and 14c and below, 2c. To "open" dealer accounts, discounts in each case are 0.5c less on the same price basis.

Continental Oil

	Dealer Prices — Conoco Bronze Ex-Tax	All Tax	Total Conoco Bronze	De-mand	Kerosine T.W
Denver, Colo.	12	5	17	16	11
Grand Junc., Colo.	14.5	5	19.5	18.5	15
Pueblo, Colo.	12	5	17	16	10
Casper, Wyo.	12.5	5	17.5	16.5	11.5
Cheyenne, Wyo.	12.5	5	17.5	16.5	13
Billings, Mont.	14.5	6	20.5	19.5	14.5
Butte, Mont.	13	6	19	18	14.5
Great Falls, Mont.	14.5	6	20.5	19.5	14.5
Helena, Mont.	14.5	6	20.5	19.5	14.5
Salt Lake City, Utah.	14	5	19	18	16
Boise, Ida.	14.5	6	20.5	19.5	18
Twin Falls, Ida.	15	6	21	20	18
Albuquerque, N. M.	10.5	†6.5	17	16	13
Roswell, N. M.	11.5	†6.5	18	17	10
Santa Fe, N. M.	12.5	*7	19.5	18.5	12
Muskogee, Okla.	9	5	14	13	7
Oklahoma City, Okla.	9	5	14	13	8
Tulsa, Okla.	9	5	14	12	8
Ft. Smith, Ark.	9.5	5	14.5	13.25	8
Little Rock, Ark.	9.5	7.5	17	16	9.5
Texarkana, Ark.	9.5	5	14.5	12	8.5

†Includes city tax of 0.5c.
*Includes 1c city tax.

S. O. California

STANDARD GASOLINE

	Total T.W.	Taxes	Total T.W.	S.S.	Kerosine T.W.
San Francisco, Cal.	13	4	17	18	11.5
Los Angeles, Cal.	12.5	4	16.5	17.5	9
Fresno, Cal.	13.5	4	17.5	18.5	11
Phoenix, Ariz.	14.5	6	20.5	21.5	†16
Reno, Nev.	14.5	5	19.5	20.5	13
Portland, Ore.	13.5	6	19.5	20.5	13.5
Seattle, Wash.	13.5	6	19.5	20.5	13.5
Spokane, Wash.	16.5	6	22.5	23.5	16.5
Tacoma, Wash.	13.5	6	19.5	20.5	13.5

FLIGHT GASOLINE
(Third Grade)

San Francisco, Cal.	11.5	4	15.5	16.5	....
Los Angeles, Cal.	11	4	15	16	....
Fresno, Cal.	12	4	16	17	....
Reno, Nev.	13	5	18	19	....
Phoenix, Ariz.	13	6	19	20	....
Portland, Ore.	12	6	18	19	....
Seattle, Wash.	12	6	18	19	....
Spokane, Wash.	15	6	21	22	....
Tacoma, Wash.	12	6	18	19	....

S. O. California—Cont'd

†Includes 5c state tax.

Discount to dealers: on gasoline, off t.w. price on Standard Ethyl and Standard Gasoline, to 100% dealers, 3c; to split dealers, 2c; on Flight gasoline, both 100% and split dealers, 2c.

On Stanavo Aviation Gasoline, to all classes of dealers, 3c off t.w.

To commercial consumers: off tank wagon price: on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery on Stanavo Aviation, Standard Ethyl and Standard Gasolines, 3c. Flight Gasoline, 2c per gallon. S.s. schedule applies on single deliveries less than 40 gallons.

On kerosine in tank car, transport truck and trailer delivery, 3c off t.w. price; plant deliveries to jobbers, 2.5c below t.w.

Canada

PRICES OF IMPERIAL OIL LTD.

Per Imperial Gallon, which is 1.2 U. S. Gallons

3-STAR IMPERIAL GASOLINE

	Total T.W.	Taxes	Total T.W.	S.S.	Kerosine T.W.
Hamilton, Ont.	15	6	21	23.5	17
Toronto, Ont.	15	6	21	23.5	17
Brandon, Man.	22.8	7	29.8	32.8	22.3
Winnipeg, Man.	21.2	7	28.2	31.2	20.7
Regina, Sask.	22.5	7	29.5	32.5	22
Saskatoon, Sask.	25.3	7	32.3	35.3	24.8
Edmonton, Alta.	23.5	7	30.5	33.5	24.2
Calgary, Alta.	21	7	28	31	21.5
Vancouver, B. C.	15	7	22	26	23
Montreal, Que.	12.5	6	18.5	*	17.5
St. John, N. B.	16	8	24	28	18.5
Halifax, N. S.	16	8	24	28	18.5

*Imperial Oil Ltd. transferred stations to dealers; no prices available.

Discounts to Divided Dealers: *off s.s. prices*: Maritime Provinces, 4c; Ontario, 2½c; Prairie Provinces and British Columbia, 3c, except Vancouver and Victoria, 4c; Quebec, divided dealers pay posted t.w. price. *To Undivided Dealers*: additional 1c discount throughout territory, except in Maritime Provinces.

Aviation Gasoline

Following are tank car and/or tank wagon prices of aviation gasoline in principal marketing territories (Stanavo aviation in all territories except Continental Oil.) Tax column includes 1c federal tax, and state tax; also municipal taxes as indicated in footnotes.

In Effect Dec. 7, 1936

S. O. NEW JERSEY

	Tank Car	T.W.
Bayonne, N. J.	10	12
Baltimore, Md.	10	12
Washington, D. C.		12.6
Richmond, Va.		14.2
Greensboro, N. C.		14.7
Raleigh, N. C.		16.6
Charleston, W. Va.		14.2

COLONIAL BEACON OIL CO.

	T.W.
Brooklyn, N. Y.	12.8
Buffalo, N. Y.	14.1
Boston, Mass.	14.5

S. O. PENNSYLVANIA

Philadelphia, Pa.	13.1
Pittsburgh, Pa.	13.9

S. O. LOUISIANA

New Orleans, La.	12.3
Shreveport, La.	12.6

Prices in above four territories do not include state or federal taxes. They are for 74 octane grade aviation gasoline. An 80 octane product generally brings 0.5c premium and an 87 octane product, 1.5c premium over the 74 octane grade.

Note: S.s. prices in above four territories are generally 6c over t.w. prices. Above t.w. prices are net, with no discounts allowed for quantity purchases. T.w. prices are generally tank car price, plus freight, plus 2.5c per gal.

S. O. OHIO
Thru Ohio

	Consumer T.W.	Tax	Total Consumer T.W.
Stanavo Ethyl Aviation:			
73 octane	15.5	5	20.5
80 octane	16.5	5	21.5
87 octane	17.5	5	22.5

Discounts: For delivery on contract to hangar operators and resellers: 2c below commercial consumer posted t.w. price, shown above.

TANK WAGON, SERVICE STATION MARKETS

Tax column includes 1c federal tax, state gasoline tax, also city and county taxes as indicated in footnotes, and inspection fees, as shown in general footnote. These prices in effect Dec 7, 1936, as posted by principal marketing companies at their headquarters offices, but subject to later corrections

S. O. INDIANA

Chicago, Ill.	14.4	4	18.4
Indianapolis, Ind.	15.3	5	20.3
Detroit, Mich.	15.9	4	19.9
Milwaukee, Wisc.	14.7	5	19.7
Minneapolis, Minn.	14.8	4	18.8
St. Louis, Mo.	14.1	*4	18.1
Kansas City, Mo.	13.8	*4	17.8
Fargo, N. D.	15.8	4	19.8
Huron, S. D.	15.3	5	20.3
Wichita, Kans.	13.3	4	17.3

*Includes 1c city tax.
**Includes 0.1c to cover sales tax.

HUMBLE OIL & REFINING CO.

	Tank Car
Baytown, Tex. (exclusive of taxes)	8.5

CONTINENTAL OIL CO.

	T.W.	Tax	Total T.W.
Denver, Colo.	17	5	22
Cheyenne, Wyo.	17.5	5	22.5
Helena, Mont.	19.5	6	25.5
Salt Lake City, Utah	19	5	24
Albuquerque, N. M.	15.5	*6.5	22

*Includes city tax of 0.5c.

S. O. CALIFORNIA

Phoenix, Ariz.	16.5	6	22.5
Los Angeles, Cal.	14.5	4	18.5
San Francisco, Cal.	15	4	19
Reno, Nev.	16.5	5	21.5
Portland, Ore.	15.5	6	21.5
Seattle, Wash.	15.5	6	21.5
Spokane, Wash.	18.5	6	24.5

Note: For discounts, etc., see note under Standard and Flight gasoline above.

Naphtha (In Tank Wagon)

In Effect Dec. 7, 1936

(Net price in Tank Wagon; in Cents per Gallon)

***S. O. NEW JERSEY**

	Mineral Spirits	V.M. & P. Naphtha
Baltimore, Md.	14	15.5
Newark, N. J.	12.5	14.5
Washington, D. C.	14	**17.5

*2c off t.w. prices to large buyers in some instances.
**Steel bbls. only.

SOCONY-VACUUM OIL CO.

Buffalo, N. Y.	*15	15
New York City	10.5	11.5
Rochester, N. Y.	†16	....
Syracuse, N. Y.	**16	....
Boston, Mass.	13	13.5
Bridgeport, Conn.	13	13.5
Providence, R. I.	13	14

*2c off for 50 gals. or more purchase; 3.5c off for 4,000 gals. or more.
†4c off for purchase of 150 gals. or more.
**Less 2c for 150 gals. or more.

ATLANTIC REFINING CO.

Philadelphia, Pa.	11.5	12.5
Lancaster, Pa.	13	14
Pittsburgh, Pa.	12.5	14.5

Note: Prices for Mineral Spirits also apply to Stoddard Solvent; and prices for V. M. & P. Naphtha apply also to Light Cleaners Naphtha.

S. O. OHIO

	S.R. Solvent	V.M. & P. Naphtha
Thru Ohio	13.25	13.75

Note: V.M. & P. Naphtha prices also apply on Dry Cleaners naphtha and special Varnolene; Varnolene and Sohio Solvent 0.5c below these prices. Discounts to contract consumers, off t.w. price: 300 to 999 gals., 0.5c; 1,000 to 2,499 gals., 0.75c; 2,500 to 4,999 gals., 1c; 5,000 or more gals. 1.5c.

S. O. INDIANA

	Oleum Spirits	V.M. & P. Naphtha	Stanisol
Chicago, Ill.	16.2	16.5	15
Detroit, Mich.	17.9	19	18
Kansas City, Mo.	13.3	14.3	13.3
St. Louis, Mo.	13.6	14.6	12.5
Milwaukee, Wis.	18.2	19.2	18.2
Minneapolis, Minn.	17.3	18.3	15.4

Note: Prices for V. M. & P. apply also to Light Cleaners Naphtha. All prices, with exception of Missouri points, include state tax. Prices shown are base prices, before discounts.

Naphtha (In Tank Cars)

In Tank Cars (F. o. b. refinery or seaboard terminal except Ohio, delivered price.)

	V.M. & P. Naphtha	Solvent
Baltimore	10	9.5
New York Harbor	10	9
Philadelphia district	10	9.5
Providence	10	9.5
Ohio points, delivered	9.25	*8.75

*This is on S.R. solvent.
Note: In Ohio, prices on D.C. naphtha and special Varnolene are same as V.M. & P.; on Varnolene and Sohio Solvent, prices are 0.5c less than on V.M. & P.

Latest Changes

From Dec. 1 to Dec. 7 inclusive. Dates and amounts of changes shown. See table for full current prices. Changes are on gasoline unless kerosine is indicated.

S. O. New Jersey—Essolene:

Service Stations at Roanoke, Va., transferred to dealers, Dec. 2.

S. O. Ohio—Kerosine:

Geauga County, cut 1c, Dec. 4.

S. O. Indiana—Kerosine:

Kerosine up 0.3c at normal point thru territory, Dec. 4. Unchanged were: Indianapolis, South Bend, Detroit, Grand Rapids, Saginaw, Kansas City and Wichita.

Continental Oil—Conoco Bronze and Demand:

Beginning in this issue all s. s. prices in Rocky Mountain states are eliminated, and dealer prices are substituted.

Corrections

Notation of amount of change and dates not previously shown in table. Table in this issue is corrected to show these changes. Changes are on gasoline unless kerosine is indicated.

S. O. New Jersey—Kerosine:

Atlantic City, cut 1c, Nov. 26.

S. O. Louisiana—Kerosine:

Little Rock, cut 0.5c, Nov. 27. Correct price for kerosine at Little Rock, should have been 9.5c instead of 11.5c as published on page 33 of Dec. 2 issue.

Continental Oil—Demand:

Ft. Smith, dealer price cut 0.5c, Oct. 29.

Little Rock, dealer price, cut 0.25c, Oct. 14.

Fuel Oil Market

(*Continued from page 27*)

mand continued brisk. Fractional price advances were reported in one or two districts.

* * *

CHICAGO, Dec. 5.—Announcement of Continental's crude advance resulted in virtually all sellers withdrawing from the Mid-Western fuel oil market Dec. 4. Prices at the end of the week were nominal.

While demand for fuel oils has been sufficient to keep a good balance between supply and demand, buying orders have been fairly spotty. However, developments of the past week are expected to give them added life. Many believed that announcement of the crude advance would dissipate much of the buying hesitancy, and with the start of the real cold weather, buying to refill storage was expected to enter the market in greater proportion.

Some sellers were reported asking a minimum of 3.625 cents for No. 1 prime white oil, with prices for other light fuels correspondingly higher.

Industrial fuel oils were active in all quarters all week. Some resellers experienced difficulty obtaining sufficient supplies of No. 5 and 6 oils. Refineries adjacent to Chicago had a ready outlet for fuel oil from industrial plants in the district.

Slight advances in light fuel oil prices in the metropolitan Chicago area are to be made Dec. 7. As yet this has had no effect on tank car markets.

* * *

Commenting on gasoline substitutes, Edison Pettit, Mount Wilson Observatory, Carnegie Institution of Washington, said there is not enough arable land in the U. S. to raise the crops necessary to manufacture the annual supply of alcohol that would be required to completely replace petroleum.

* * *

TULSA, Dec. 5.—The Sunray Oil Co. has announced it will distribute a portion of its earnings this year to its employes in the form of a cash bonus just prior to Christmas. The company also will distribute a 5 per cent cash dividend to its common stockholders on Dec. 21, making a total of 10 per cent in cash dividends on common stock this year.

A. P. I. REFINERY REPORT

Total Motor Fuel Stocks Rise 323,000 Barrels

By Teletype

NEW YORK, Dec. 8

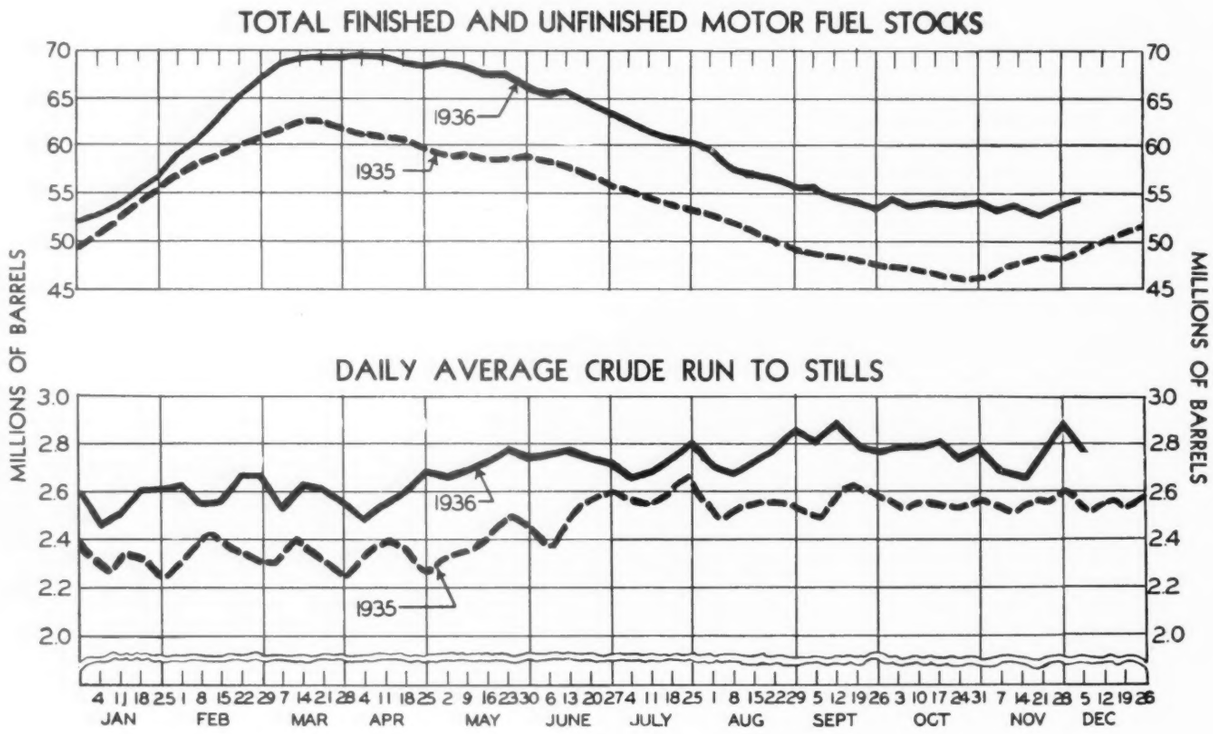
A DECREASE of 18,000 barrels in daily average crude runs to refinery stills was reflected in refinery operations at 89.9 per cent of the country's plants the week ended Dec. 5, according to the American Petroleum Institute. This compares with an increase of 115,000 barrels the week ended Nov. 28.

Total motor fuel stocks increased 323,000 barrels, to 54,178,000 barrels on Dec. 5. Refinery stocks decreased 114,000 barrels, to 29,863,000 barrels. In-transit and terminal stocks increased 704,000 barrels, to 18,624,000 barrels, and stocks of unfinished gasoline declined 267,000 barrels, to 5,691,000 barrels.

The largest gain in motor fuel stocks was in the East Coast, where additions of 394,000 barrels to stocks were reported. Four districts reported decreases, these being Indiana-Illinois-Kentucky, with the largest decrease of 123,000 barrels; with Oklahoma-Kansas-Missouri, Texas Gulf and Rocky Mountain, showing smaller decreases.

East Coast plants also indicated the largest increase in refinery runs. Only one other district increased runs, that being the Louisiana Gulf. East Coast runs were 40,000 barrels larger on daily average and Louisiana Gulf 17,000 barrels larger. Decreases ranged from 4000 barrels in the Rocky Mountain plants to 26,000 barrels in Oklahoma-Kansas-Missouri.

GAINESVILLE, Tex., Dec. 5.—The new plant of the Gainesville Refining Corp. here has been placed in operation, under the superintendency of G. A. Mattson. The plant, of 1500 barrels capacity, is processing Cooke county crude, products being gasoline, kerosine, distillate, gas oil and fuel oil. C. W. Anderson is sales manager.


TOTAL FINISHED AND UNFINISHED MOTOR FUEL STOCKS
MILLIONS OF BARRELS
70
65
60
55
50
45
1936
1935
DAILY AVERAGE CRUDE RUN TO STILLS
3.0
2.8
2.6
2.4
2.2
2.0
4 11 18 25 1 8 15 22 29 7 14 21 28 4 11 18 25 2 9 16 23 30 6 13 20 27 4 11 18 25 1 8 15 22 29 5 12 19 26 3 10 17 24 31 7 14 21 28 5 12 19 26
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

CURRENT REFINERY OPERATIONS

Districts	Per Cent Capacity Reporting	Daily Average Crude to Stills (Barrels) Week Ended		Per Cent of Reporting Capacity Operated Week Ended		Stocks Thousands of Barrels Total Finished and Unfinished Motor Fuel*		Stocks Thousands of Barrels Gas & Fuel Oil		% Total Capacity Reporting	Cracked Gasoline Production Daily Av. Production (Barrels) Week Ended	
		Dec. 5	Nov. 28	Dec. 5	Nov. 28	Dec. 5	Nov. 28	Dec. 5	Nov. 28		Dec. 5	Nov. 28
East Coast	100.0	554,000	514,000	90.5	84.0	14,485	14,091	11,463	11,923	100.0	124,000	117,000
Appalachian	94.8	103,000	110,000	70.5	75.3	2,210	2,158	657	667	98.7	20,000	23,000
Ind., Ill., Ky.	96.2	409,000	423,000	89.5	92.6	8,419	8,542	5,962	6,219	99.7	129,000	133,000
Okla., Kans., Mo.	84.8	254,000	280,000	66.1	72.9	5,601	5,676	3,419	3,499	89.1	74,000	78,000
Inland Texas	48.5	106,000	112,000	66.3	70.0	1,736	1,681	1,769	1,726	70.9	30,000	33,000
Texas Gulf	97.0	637,000	642,000	89.7	90.4	7,314	7,409	7,886	8,714	78.5	158,000	149,000
La. Gulf	96.4	134,000	117,000	82.2	71.8	1,455	1,436	1,906	2,175	96.1	32,000	25,000
No. La., Ark.	90.0	49,000	57,000	68.1	79.2	283	266	544	433	95.7	9,000	10,000
Rocky Mt.	61.9	39,000	43,000	65.0	71.7	886	899	769	784	84.8	10,000	12,000
California	92.6	484,000	489,000	61.3	62.0	11,789	11,699	73,650	73,610	100.0	76,000	87,000
Total Reporting	89.9	2,769,000	2,787,000	77.9	78.4	54,178	53,855	108,025	109,750	95.9	662,000	667,000
Estimated U. S. Total (Bur. of Mines Basis)		2,990,000	3,020,000			57,696	**57,373	110,287	**112,012		710,000	710,000

*Includes stocks at refineries, in bulk terminals, pipe lines and in transit. **Revised.

SEABOARD MARKETS, EXPORT AND COASTWISE

Prices do not include Federal tax. Where $ mark is shown, prices are per barrel of 42 U. S. gallons

Eastern Domestic

(Prices n cents per gallon tank car lots, unless otherwise noted, f.o.b. refinery or seaboard terminal, representing majority of quotations or sales. Inter-refinery and export prices not included. Florida and S. Carolina inspection tax not included)

***MOTOR GASOLINE**

Prices Dec. 7	60-64 Octane	65 Octane and Above
New York harbor	6.25	6.50
New York harbor, barges	6.00	6.25
Philadelphia district	6.50	6.50 – 6.75
Baltimore district	6.50	6.75
Norfolk district	6.50 – 6.75	7.00
Wilmington, N. C. district	6.75	7.00
Charleston, S. C. district	6.75	7.00
Savannah district	6.75	7.00
Jacksonville district	6.75	7.00
Portland district	6.75 – 7.00	7.00 – 7.25
Boston district	6.50	6.75
Boston district, barges	6.25	6.50
Providence district	6.50	6.75
Providence district, barges	6.25	6.50

*Due to lack of companies offering U. S. Motor gasoline, 59 octane and below in the open market, prices for this grade are discontinued. Quotations nominally are 0.25c below those for 60-64 octane grade.

WATER WHITE KEROSINE

Prices Dec. 7			
New York harbor	4.625	Savannah district	5.25
N. Y. harbor, barges	4.50	Jacksonville district	5.25
Philadelphia district	4.625– 4.75	Portland district	5.125
Baltimore district	4.625	Boston district	4.625
Norfolk district	4.875	Boston dist., barges	4.50
Wilmington, N. C.	4.875	Providence district	4.375– 4.625
Charleston, S. C. dist.	4.875	Providence, barges	4.375– 4.50

***FUEL OILS**

Prices Dec. 7	New York harbor	New York harbor, barges	Philadelphia district
No. 1	4.625	4.50	4.625– 4.75
No. 2	4.25	4.00 – 4.125	4.25
No. 3	4.25	4.00 – 4.125	4.25
No. 4	3.875– 4.00	3.75 – 3.875	3.75 – 4.00
No. 5 (per barrel)	$1.35	.....	$1.35
No. 6 (per barrel)	$1.15	.....	$1.15

	Baltimore district	Boston district
No. 1	4.625	4.625
No. 2	4.25	4.25
No. 3	4.25	4.25
No. 4	3.75 – 4.00	4.25
No. 5 (per barrel)	$1.35	$1.45
No. 6 (per barrel)	$1.15	$1.15

	Boston dist., barges	Providence district	Providence dist., barges
No. 1	4.50	4.375– 4.625	4.375– 4.50
No. 2	4.125	4.25	4.125
No. 3	4.125	4.25	4.125
No. 4	4.125	3.75 – 4.00	3.625

*Fuel oils meet specifications of U. S. Commercial Standards CS12-35

	Bunker Oil Grade C Per Barrel	Diesel Oil Ships' Bunkers Per Barrel	Gas Oil 28-34 Gravity Per gallon	Diesel Oil Shore Plants Per gallon
New York harbor	*$1.15	*$1.65	4.25	4.25
Philadelphia dist.	*$1.15	*$1.65	4.25	....
Baltimore district	*$1.15	*$1.65	4.25	....
Norfolk district	*$1.15	*$1.785	4.25	....
Charleston district	$1.10	$1.65	....	....
Savannah district	$1.10	$1.89	....	4.75
Jacksonville dist.	$1.10	$1.995	....	4.75
Tampa district	$1.10	$1.995	....	....
Portland district	$1.25	$1.75	....	....
Boston district	$1.15	*$1.65	....	....
Providence district	$1.15	$1.65	.....	....

*Lighterage for bunker oil, 5c per bbl. additional; for Diesel oil, 6.5c per bbl. additional.

Pacific Export

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

Prices—	Dec. 7	Nov. 30	Nov. 23
53-55 U. S. Motor	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25
400 e.p. blend 65 Octane and above	5.25 – 5.75	5.25 – 5.75	5.25 – 5.75
38-40 w.w. kerosine, 150 fire point	4.25 – 5.00	4.25 – 5.00	4.00 – 5.00
41-43 w.w. kerosine	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00
44 water white kerosine	5.00	5.00	5.00
Prime white kerosine	3.50 – 4.25	3.50 – 4.25	3.50 – 4.25
In Cargo lots, per barrel			
Diesel fuel oil, above 23.9°	$1.05 –$1.15	$1.00 –$1.15	$1.00 –$1.15
Diesel fuel oil, under 23.9°	$0.95 –$1.10	$0.95 –$1.10	$0.95 –$1.10
30-34 gas oil	$1.05 –$1.15	$1.05 –$1.15	$1.05 –$1.15
Grade C fuel oil	$0.75 –$0.90	$0.75 –$0.90	$0.75 –$0.90

Pacific Export (cont'd)	Dec. 7	Nov. 30	Nov. 23
In Ships' Bunkers, or deep tank lots, per barrel:			
Diesel fuel oil, above 23.9 gravity	$1.00 –$1.16	$1.00 –$1.16	$1.00 –$1.16
Diesel, under 23.9 gravity	$0.95 –$1.06	$0.95 –$1.06	$0.95 –$1.06
Grade C fuel oil	$0.90 –$0.95	$0.90 –$0.95	$0.90 –$0.95
Cased Goods:			
Gasoline, U. S. Motor	$1.30 –$1.50	$1.30 –$1.50	$1.30 –$1.50
Gasoline, 400 e.p. blend	$1.45 –$1.65	$1.45 –$1.65	$1.45 –$1.65
38-40 w.w. kerosine, 150 fire point	$1.10 –$1.25	$1.10 –$1.25	$1.10 –$1.25
Kerosine, prime white	$1.05 –$1.15	$1.05 –$1.15	$1.05 –$1.15

New York Export

(Prices in cents per gallon in barrels, F.a.s. New York

CYLINDER OILS (Pennsylvania Products)

Bright stock:			
Light, 25 pour point	27.50	27.50	27.50
Dark, 25 pour point	27.00	27.00	27.00
Neutral oil:			
200 3 color, 25 pour point	29.50	29.50	29.50
150 3 color, 25 pour point	26.00	26.00	26.00
600 Warren E filtered	22.50 –23.00	22.50 –23.00	22.50 –23.00
600 stm. rfd., unfiltered	19.50 –20.00	19.50 –20.00	19.50 –20.00
650 stm. rfd . unfiltered	21.00 –21.50	21.00 –21.50	21.00 –21.50
600 flash, steam refined	22.00 –22.50	22.00 –22.50	22.00 –22.50
630 flash, steam refined	24.00	24.00	24.00

Wax Domestic *and* Export

(Prices in cents per pound. Tests made by A. S. T. M. methods. Melting points shown below, however, are A. M. P., 3° higher than A. S. T. M. (E. M. P.) melting points. Export prices are f.a.s. carload lots. Domestic prices are f.o.b refineries in New York and New Orleans districts, in bags, carload lots, with 0.2c discount allowed for shipment in bulk. Scale solid and fully refined slabs in bags.)

	New York		New Orleans	
Prices—Dec. 7	Domestic	Export	Domestic	Export
124-6 Y.C. scale	2.40 – 2.45	2.40 – 2.45	2.40 – 2.45	2.40 – 2.45
122-4 W.C. scale	2.40 – 2.45	2.40 – 2.45	2.40 – 2.45	2.40 – 2.45
124-6 W.C. scale	2.40 – 2.50	2.40 – 2.50	2.40 – 2.50	2.40 – 2.50
123-5 Fully refined	4.45	4.125	4.45	4.125
125-7 Fully refined	4.55	4.25	4.55	4.25
128-30 Fully refined	4.80	4.50	4.80	4.50
130-2 Fully refined	5.05	4.75	5.05	4.75
133-5 Fully refined	*5.35	5.25	*5.35	5.25
135-7 Fully refined	*5.60	5.50	....	....

*Shipment either in bags or in bulk.

Gulf Coast

(Prices are f.o.b. ship at Gulf oil terminals representing opinions of majority of traders, except prices specified to the contrary. Prices cover bulk shipments of 20,000 barrels or more, unless otherwise noted.)

MOTOR GASOLINE

For Domestic Shipment Prices—	Dec. 7	Nov. 30	Nov. 23
59 octane and below	5.375– 5.50	5.50	5.50
60-64 octane number	5.625– 5.75	5.75 – 5.875	5.75 – 5.875
65 octane and above	5.875	6.00	6.00
FUEL OILS			
No. 1 Fuel oil	4.125	4.00	4.00
No. 2 Fuel oil	3.625	3.50	3.50
No. 4 Fuel oil	3.375	3.25	3.25
KEROSINE			
41-43 w.w.	4.25	4.00	4.00
GASOLINE			
For Export Shipment			
U. S. Motor gasoline	5.125	5.125	5.125
60-62, 400 e.p. gasoline	5.25	5.25	5.25
61-63, 390 e.p. gasoline	5.375	5.375	5.375
64-66, 375 e.p. gasoline	5.625	5.625	5.625
KEROSINE			
44 water white	4.375	4.25	4.25
41-43 water white	4.25	4.00	4.00
41-43 prime white	4.00	3.875	3.875

(*Continued on next page*)

SEABOARD MARKETS, EXPORT AND COASTWISE

Prices do not include Federa tax. Where $ mark is shown, prices are per barre of 42 U. S. gallons

(Continued from preceding page)

GAS AND BUNKER OILS

Prices—	Dec. 7	Nov. 30	Nov. 23
For Domestic and/or Export Shipment			
*26-30 translucent gas oil	3.50	3.375	3.375
*30 plus translucent gas oil	3.625	3.375– 3.50	3.375– 3.50
*30 plus transp. gas oil	3.625– 3.75	3.50 – 3.75	3.50 – 3.75
Diesel Oil Ships' bunkers	$1.50	$1.50	$1.50
Grade C bunker oil, for ship's bunkers, per bbl.	†$0.95	†$0.95	†$0.95
Grade C bunker oil, per bbl. in cargoes	$0.95	$0.95	$0.95

*Less than ½ of 1% sulphur. †Lighterage 5c per bbl. additional.

MEXICAN CRUDE AND BUNKER OILS

(F.o.b. Steamer, Tampico)

Heavy Panuco crude, taxes to be paid, per bbl.	$0.95	$0.95	$0.95
Grade C bunker oil, ship's bunkers, taxes paid, per bbl.	$0.97	$0.97	$0.97

MID-CONTINENT LUBRICATING OILS

(Prices in cents per gallon in bbls. f.a.s. Gulf oil terminals. In drums and new barrels, 0.5c to 1c higher per gal. in some instances.)

190-200 vis. D 210 bright stock	26.00	26.00	26.00
150-160 vis. D 210 bright stock	23.00	23.00	23.00
0-10 pour point	22.50	22.50	22.50
10-25 pour point	22.00	22.00	22.00
25-40 pour point	22.00	22.00	22.00
150-160 vis. E 210 brt. stock			
120 vis. D 210 bright stock	21.00	21.00	21.00
180 vis. No. 3 color neutral Oil:			
0-10 pour point	16.50	16.50	16.50
15-30 pour point	16.00	16.00	16.00
200 vis. No. 3 color neutral Oil:			
0-10 pour point	17.00	17.00	17.00
15-30 pour point	16.50	16.50	16.50

Mid-Continent Lubricating Oils (Cont'd.)

Prices—	Dec. 7	Nov. 30	Nov. 23
600 s.r. olive green	12.25	12.25	12.25
600 s.r. dark green	11.00	11.00	11.00
631 s.r.	18.00 –18.50	18.00 –18.50	18.00 –18.50

SOUTH TEXAS LUBRICATING OILS

(Viscosity at 100° F., pour point 0. Tanker, f.o.b. Gulf oil terminals, for export shipment)

Unfilterable Pale Oils:

Vis. Color			
100 No. 3	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25
200 No. 3	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
300 No. 3	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00
500 No. 3½	7.50 – 7.875	7.50 – 7.875	7.50 – 7.875
750 No. 4	8.75 – 9.00	8.75 – 9.00	8.75 – 9.00
1200 No. 4	9.00 – 9.25	9.00 – 9.25	9.00 – 9.25
2000 No. 4	9.75 –10.00	9.75 –10.00	9.75 –10.00

Red Oils:

Vis. Color			
100 No. 5-6	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25
200 No. 5-6	5.875– 6.50	5.875– 6.50	5.875– 6.50
300 No. 5-6	6.25 – 6.75	6.25 – 6.75	6.25 – 6.75
500 No. 5-6	7.25 – 7.50	7.25 – 7.50	7.25 – 7.50
750 No. 5-6	8.75 – 9.00	8.75 – 9.00	8.75 – 9.00
1200 No. 5-6	8.75 – 9.25	8.75 – 9.25	9.00 – 9.25
2000 No. 5-6	9.75 –10.00	9.75 –10.00	9.75 –10.00

Note: Red oil prices shown above cover oils with green cast; prices for blue cast red oils are slightly lower in some cases.

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds. British sterling; to U. S. ports cents per barrel)

	Crude &/or Fuel		Refined Oil &/or Spirits	
Rates—Dec. 7	Last Paid	Owners Ask	Last Paid	Owners Ask
Calif.-U.K./Cont.*	20/	20/-21/	17/	18/-19/
Gulf-U.K./Cont.*	14/	14/-14/4	13/	13/-13/5
Calif. N. Atlantic (not E. of N. Y.)	....	†70c	....	†70c
Gulf-N. Atlantic** (not E. of N. Y.):				
Heavy Crude & Fuel, (10 to 19.9 gravity)	41c	40-41c	....	....
Light Crude, (30 gravity or lighter)	35c	†37c	....	....
Gasoline	....	....	40c	40c
Kerosine	....	....	41c	41c
Light Fuel	....	....	42c	42c

Note: Dirty boat quotations are enlarged to cover, "Fuel and Light Crude" quotations.

*Continental ports in range between Bordeaux and Hamburg, both inclusive

**Venezuela loading same rate: Tampico 2c to 3c per bbl. additional.

†Nominal.

Chicago Fuel Prices Advanced

CHICAGO, Dec. 7.—S. O. Indiana, effective Dec. 7, advanced tank wagon prices of Stanolex No. 1 fuel, furnace oil and range oil in amounts ranging from 0.05 to 0.25 cent in the metropolitan Chicago area.

Large-lot deliveries of No. 1 and furnace oil are advanced 0.25 cent. Small-lot deliveries, up to 150 gallons, are advanced only 0.05 cent.

All quantity brackets for range oil are advanced 0.05 cent.

Following are new prices:

No. 1; 1 to 99 gallons, 8.8 cents; 100 to 149 gallons, 7.8 cents; 150 gallons and over 7 cents.

Furnace oil; 1 to 149 gallons, 7.8 cents; 150 gallons and over, 7 cents.

Range oil; 1 to 99 gallons, 8.8 cents; 100 to 149 gallons, 7.8 cents; 150 gallons and over 7.3 cents.

At Indiana points in the Chicago area prices are 0.01 cent higher than above.

Kerosine Prices Advanced

CHICAGO, Dec. 4.—On Dec. 4, S. O. Indiana advanced prices to dealers and consumer tank wagon prices of kerosine 0.3 cent at all normal points in Illinois, Indiana, Michigan, Wisconsin, Minnesota, Iowa, Missouri, Kansas and North and South Dakota.

Rumors of retail advances in kerosine had been rife in trade circles here for the past several weeks. Tank car kerosine prices have advanced 0.5-cent in the past two months.

BARNSDALL OIL CO.

Barnsdall Oil Co. and subsidiaries report for the quarter ended Sept. 30 net profit of $509,690, after all charges, equal to 22 cents a share on 2,247,974 shares of capital (par $5) stock outstanding. This compares with net profit in preceding quarter of $738,851, or 33 cents a share.

For the first nine months of 1936, the company had a net profit of $1,719,584, or 76 cents a share.

PAYS ANOTHER EXTRA

South Penn Oil Co. declared an extra of 52½ cents, in addition to the regular quarterly dividend of 37½ cents. Both dividends are payable Dec. 29 to record of Dec. 15. The company paid an extra of 22½ cents and the regular quarterly on Sept. 30. Field workers were given a 5 per cent increase in wages, retroactive to Nov. 1.

Ashland Oil & Refg. Co. directors declared an extra dividend of 10 cents a share in addition to the regular quarterly of the same amount. Both dividends are payable Dec. 24 to record of Dec. 14.

INTERNATIONAL PETROLEUM

International Petroleum Co., Ltd., reports for the fiscal year ended June 30, last, net profit of $24,023,757, after all charges, equal to $1.65 a share on combined 200,000 shares of preferred (par $2.50) stock and 14,324,088 no-par shares of common stock. In the previous 12 months the company earned $21,666,535, or $1.49 a share on the combined common and preferred stocks.

Earnings of 14 Up 64 Per Cent

Fourteen leading oil companies, making reports for the first nine months, earned $87,567,142, an increase of about 64 per cent over the $53,496,156 earned in the same period of 1935, according to Carl H. Pforzheimer & Co. Third quarter earnings of the same companies were $38,075,610 this year, an increase of 53 per cent over the $24,829,454 earned in the third quarter 1935.

Standard Oil Co. of Ohio declared a dividend of $1.50 on its common stock, payable Dec. 21 to record of Dec. 10. The company said that, of this amount, 25 cents was in anticipation of the regular quarterly dividend of Jan. 1 while the remainder $1.25 is designated as a special dividend.

CRUDE OIL MARKETS

Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates as given

EASTERN FIELDS

Posted by Joseph Seep Purchasing Agency

(Effective Jan. 13, 1936, except Corning Sept. 18, 1936)

Penna. Grade Oil in Southwest Penna. Pipe Lines $2.17
Penna. Grade Oil in Eureka Pipe Lines (West Virginia) $2.12
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O.) $1.97
Corning Oil in Buckeye Pipe Lines (Ohio) .. $1.32

Posted by Other Companies

Tide Water Pipe Co., Ltd.
Bradford-Allegheny district (Penna. and N. Y.) (Effective Jan. 13, 1936) $2.45
*The Pennzoil Co.: (Effective Jan. 13, 1936)
Penna. Grade Oil in National Transit Lines* $2.42
Ashland Oil & Transportation Co.:
Somerset Oil in Ashland Lines (Ky.): (Effective Jan. 9, 1936)
Big Sandy River $1.30
Kentucky River $1.38

*The Pennzoil Co. posts $2.42 in Cochran, Franklin, Hamilton and Doolittle, Pa. fields; prices in other lower districts range down to $2.37 per bbl. at well.

MICHIGAN

Posted by Pure Oil Co.

Midland, Midland County (Sept. 16, 1936) .. $1.32

Posted by Simrall Pipe Line Corp.

(Effective Sept. 16, 1936)

West Branch and equal grades $1.16
Beaverton, Crystal, Greendale, Porter and equal grades $1.32

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

(Effective Jan. 9, 1936)

Illinois, Princeton $1.23

(Effective Sept. 22, 1936)

Lima $1.15

(Effective Nov. 1, 1936)

Owensboro (Western Ky.) $1.28

Posted by Stoll Oil Refining Co.

(Effective Jan. 9, 1936)

Stoll Pipe Line Oil (Ky.) $1.28

CANADIAN FIELDS

Posted by Imperial Oil Limited

Western Ontario

(Effective Sept. 9, 1933)

Petrolia $2.10
Oil Springs $2.17

Alberta—Turner Valley

(Prices f.o.b. field tankage)

(Effective Feb. 3, 1936)

Crude:		Naphtha:	
40-44.9	$1.55	†Clear	$2.70
45-49.9	$2.12	†Discolored	$2.46
50 and above	$2.32		

†Clear naphtha: 22 color; 10 lbs. vapor pressure, Reid method; 90% recovery; end point, 410°. Discolored naphtha: same specifications as for clear naphtha except color.

MID-CONTINENT

Posted by Stanolind Crude Oil Purchasing Co.

(Effective Jan. 9, 1936)

(In Oklahoma-Kansas)	(In North-North Central Texas)
Below 29 ..... $0.94	$0.84
29-29.9 ..... 0.96	0.86
30-30.9 ..... 0.98	0.88
31-31.9 ..... 1.00	0.90
32-32.9 ..... 1.02	0.92
33-33.9 ..... 1.04	0.94
34-34.9 ..... 1.06	0.96
35-35.9 ..... 1.08	0.98
36-36.9 ..... 1.10	1.00
37-37.9 ..... 1.12	1.02
38-38.9 ..... 1.14	1.04
39-39.9 ..... 1.16	1.06
40 and above 1.18	1.08

Above Stanolind prices met as follows:
Jan. 9, by The Texas Co. in North and North Central Texas; Continental Oil in all three states.

Note: Stanolind prices in Okla.-Kans. are for quantities computed by 97% tank tables. In Texas, 99% tank tables are used, volume corrected to 60° F., and deduction for full b.s. & w. content.

Posted by Carter Oil Co.

In Oklahoma

(Effective Jan. 9, 1936)

Below 25	$0.86	33-33.9	$1.04
25-25.9	0.88	34-34.9	1.06
26-26.9	0.90	35-35.9	1.08
27-27.9	0.92	36-36.9	1.10
28-28.9	0.94	37-37.9	1.12
29-29.9	0.96	38-38.9	1.14
30-30.9	0.98	39-39.9	1.16
31-31.9	1.00	40 and above	1.18
32-32.9	1.02		

Jan. 9, Carter's Oklahoma gravity and price schedule met in Oklahoma-Kansas by Sinclair-Prairie, and Humble's West Central Texas schedule met in North and North Central Texas where Sinclair-Prairie buys. Same day, Shell Petroleum met Carter in full in Oklahoma-Kansas.

Posted by Magnolia Petroleum Co.

(Effective Jan. 9, 1936)

In Oklahoma, same schedule as Carter Oil, which see above, beginning with below 25, at $0.86 and ending with 40 & above, at $1.18.

In Texas: North and North Central, including Burkburnett, Archer, Stephens, Henrietta, Electra, Comanche and Olden; and in Central Texas, including Mexia, Wortham, and Panola county, same gravity and price schedule as Humble in West Central Texas, which see below, beginning with below 29 at $0.84, and ending with 40 and above, at $1.08.

Posted by Humble Oil & Refining Co.

TEXAS FIELDS

(*West Central Texas)

(Effective Jan. 9, 1936)

Below 29	$0.84	35-35.9	$0.98
29-29.9	0.86	36-36.9	1.00
30-30.9	0.88	37-37.9	1.02
31-31.9	0.90	38-38.9	1.04
32-32.9	0.92	39-39.9	1.06
33-33.9	0.94	40 and above	1.08
34-34.9	0.96		

*Includes Brown, Callahan, Coleman, Comanche, Eastland, Fisher, Haskell, Jones, Shackelford, Stephens, Throckmorton and Young counties.

Shell Petroleum Corp., on Jan. 9, met Humble in Fisher county, except that Shell posts five lower grades, beginning with below 25 gravity at $0.76; 25-25.9, $0.78; 26-26.9, $0.80; 27-27.9, $0.82; and 28-28.9, $0.84; rest of schedule same as Humble's in West Central Texas.

†Effective Dec. 1, 1934, Humble prices are based on 99% tank tables at 60F. Allowance or deduction of 1% is made for each 25° change in temperature above or below 60F.

*East Central Texas

(Effective Jan. 9, 1936)

Below 29	$0.91	35-35.9	$1.05
29-29.9	0.93	36-36.9	1.07
30-30.9	0.95	37-37.9	1.09
31-31.9	0.97	38-38.9	1.11
32-32.9	0.99	39-39.9	1.13
33-33.9	1.01	40 and above	1.15
34-34.9	1.03		

*Including Anderson, Cherokee, Limestone, Navarro and Van Zandt counties.

Stanolind Oil & Gas Co., Jan. 20, posted in Marion County (East Central Texas), below 29 oil at $0.86, plus 2c differential, to 40 and above at $1.10.

Jan. 9, Sinclair-Prairie met Humble's prices in Mexia.

PANHANDLE TEXAS

Posted by Humble Oil & Refining Co.

(Effective Jan. 9, 1936)

	Gray County	Carson-Hutchinson
Below 35	$0.86	$0.81
35-35.9	0.88	0.83
36-36.9	0.90	0.85
37-37.9	0.92	0.87
38-38.9	0.94	0.89
39-39.9	0.96	0.91
40 & above	0.98	0.93

Jan. 9, above prices met by Sinclair-Prairie, Magnolia and The Texas Co. in the entire area, also by Continental Oil in Carson-Hutchinson.

EAST TEXAS

(Effective Jan. 9, 1936)

Stanolind, Humble, Shell, Sinclair-Prairie, Texas, Sun Oil and Magnolia $1.15

Shell also posted on Jan. 9, in Livingston area, Polk County, Texas, $1.15.

NORTHEAST TEXAS

(Posted by Humble, Nov. 1, 1936)

Talco $0.65

(Posted by Magnolia, May 1, 1936)

Cass County (Rodessa field):
Below 29 ..... $0.86
29-29.9 ..... 0.88

Rest of schedule same as S. O. La. posts in Rodessa, which see below.

WEST TEXAS AND NEW MEXICO

Posted by Humble Oil & Refining Co.

(Effective Jan. 14, 1936)

(Including Andrews, Crane, Crockett, Ector, Glasscock, Howard, Winkler and Upton Counties, Texas and Lea county, New Mexico).

Below 29	$0.75	33-33.9	$0.84
29-29.9	0.76	34-34.9	0.86
30-30.9	0.78	35-35.9	0.88
31-31.9	0.80	36 and above	0.90
32-32.9	0.82		

Pecos, West Texas $0.85

Posted by Continental Oil Co.

(Effective Jan. 9, 1936)

Artesia, Jackson and Maljamar pools, N. M. .. $0.80

Jan. 16, Magnolia met Humble in Crane, Upton, Howard, Glasscock, Mitchell and Winkler.

Jan. 9, Texas Co. posted Winkler and Lea counties at $0.85; Crane and Upton, $0.80.

Shell Petroleum Corp., on Jan. 23, met Humble in Crane, Glasscock, Howard, Pecos (except Yates shallow pool), Winkler, and Upton counties, Tex., and in Lea County, N. Mex. On Jan. 9, Shell posted in Yates shallow pool in Pecos county, Tex., $0.75.

SOUTH AND SOUTHWEST TEXAS

Posted by Humble Oil & Refining Co.

(Effective Jan. 14, 1936)

Darst Creek	$0.97	Pettus	$1.25
Salt Flat	0.97	Tomball	1.30

(Effective Nov. 1, 1936)

Saxet	$0.95	Mirando	$0.90
Heyser heavy	0.90	Placedo heavy	0.90
Heyser light	1.15	Taft	0.95

Shell Pet. Corp. on Jan. 9, posted $0.97 in Salt Flat district, Tex.

*Anahuac and *Dickinson (including Flour Bluff, Nov. 1, 1936)

(Effective Jan. 9, 1936)

30-30.9	$1.04	36-36.9	$1.16
31-31.9	1.06	37-37.9	1.18
32-32.9	1.08	38-38.9	1.20
33-33.9	1.10	39-39.9	1.22
34-34.9	1.12	40 and above	1.24
35-35.9	1.14		

*Anahuac in Chambers county; Dickinson Galveston.

Jan. 9, The Texas Co. posted $0.97 for Darst Creek.

Jan. 9, Magnolia posted $0.97 in Darst Creek; $1.30 in Tomball; $0.90 in Luling; $1.00 in Lytton Springs; $1.10 for Cleveland, Liberty county, Tex.; $1.03 in Hardin, Liberty county, Tex. Nov. 1, 1936, posted $0.90 for Mirando, Tex.

Posted by Humble

Conroe and Raccoon Bend

(Deep sand crudes)

(Effective Jan. 9, 1936)

35-35.9	$1.24	38-38.9	$1.30
36-36.9	1.26	39-39.9	1.32
37-37.9	1.28	40 and above	1.34

Jan. 9, Texas Co. met above prices.

NORTH LOUISIANA-ARKANSAS

Posted by Standard Oil Co. of Louisiana

(Effective Jan. 10, 1936)

(In Caddo, Homer, Haynesville, Sabine, De Soto, Rodessa, Sarepta, Carterville, El Dorado, and Miller county).

Below 25	$0.78	33-33.9	$0.96
25-25.9	0.80	34-34.9	0.98
26-26.9	0.82	35-35.9	1.00
27-27.9	0.84	36-36.9	1.02
28-28.9	0.86	37-37.9	1.04
29-29.9	0.88	38-38.9	1.06
30-30.9	0.90	39-39.9	1.08
31-31.9	0.92	40 and above	1.10
32-32.9	0.94		

Smackover, Ark $0.75
Nevada, Ark 0.65
Urania, La. (La. Oil Refg. Co., Jan. 1, '34) ... 0.87
Tepetate, La. (Continental Oil, Jan. 9, '36) ... 1.12

The Texas Co., effective Jan. 9, posted in No. La.-Ark. same prices as Humble posts in West Central Texas. It also posted $0.80 for Smackover and $1.12 for La Fitte, La.

Magnolia Petroleum Co., effective Jan. 16, posted on No. La.-Ark. crude, prices beginning with $0.86 for below 29 gravity, plus 2 cent differential to 40 and above, at $1.10; this posting includes Rodessa, beginning March 16, 1936. It also posted on the same day, Eldorado (East Field), and Smackover, Ark., $0.75; Lockport, La., below 20 gravity, at $0.92, plus 2c differential, to 34 and above, which is $1.22; and for Iowa, La. and Cameron-Meadow field Cameron Parish, La., below 20 at $0.82, plus 2c differential, to 34 and above, at $1.12.

Stanolind Oil & Gas Co., Jan. 20, posted in Caddo Parish, La., below 29 oil at $0.86, plus 2c differential, to 40 and above at $1.10.

Shell Pet. on Jan. 9, posts same schedule in Black Bayou and White Castle, La. as Magnolia posts in Lockport, which see in above paragraph and in Iowa district, La. posts same schedule as Magnolia in Iowa and Cameron, which also see above.

(Continued on next page)

California

(*Concluded from page 27*)

Prices Steady

N. P. N. News Bureau
LOS ANGELES, Dec. 4

Failure of the threatened embargo on truck deliveries from refineries in the Los Angeles Basin area was a favorable factor the past week in Pacific Coast petroleum markets.

Abandonment of the embargo plan by the teamsters union, due to inter-union disputes and to the strong precautionary measures taken by the police authorities, prevented any interruption of normal deliveries of gasoline and other products to and from distributing centers in that area.

In general, wholesale and retail gasoline prices remained stable throughout the west coast territory. With one or two exceptions, independent competitive brands of gasoline were quoted at 12.5 cents, inclusive of 4 cents tax, for tank wagon deliveries in the Los Angeles Basin. Limited quantities of low-grade, branded gasoline were offered at 11.75 to 12.25 cents.

Unbranded gasoline ranged from 11.5 to 11.75 cents at the rack and from 11.75 to 12 cents delivered.

Some increase was noted in the number of plants offering unbranded gasoline for distribution in the Basin area. Major company third grade brands were nominally quoted at 13 cents for similar deliveries.

An official survey of marketing conditions in Los Angeles and Orange counties indicated that a large majority of refiners were adhering to their posted bulk prices and were insisting on the maintenance of price schedules by their distributors. A potential source of trouble was the large volume of business still done by major company affiliates with commercial accounts under contract at a substantial discount.

Demand for natural gasoline for blending purposes was light and prices were easier at 7.5 to 7.75 cents, delivered at refinery.

Kerosine and kerosine distillate were firm at independent plants. In the Basin, the range for k. d. stock was 2.75 to 3.5 cents. In the San Joaquin Valley, the average price was nearer 3.5 cents; only limited supplies of independent products were available.

Because of the decline in bunkering business, fuel oil prices were easier. No changes, however, were made in major company quotations and independent refiners were not sufficiently active in this market to be a factor.

CRUDE OIL MARKETS

(*Continued from preceding page*)

***GULF COASTAL FIELDS**

Posted by Humble Oil & Refining Co.

(Effective Jan. 9, 1936)

Below 18	$0.88	26-26.9	$1.06
18-18.9	0.90	27-27.9	1.08
19-19.9	0.92	28-28.9	1.10
20-20.9	0.94	29-29.9	1.12
21-21.9	0.96	30-30.9	1.14
22-22.9	0.98	31-31.9	1.16
23-23.9	1.00	32-32.9	1.18
24-24.9	1.02	33-33.9	1.20
25-25.9	1.04	34 and above	1.22

(Effective Nov. 1, 1936)

Refugio heavy $0.95

Effective Dec. 1, 1934, Humble prices are based on 99% tank tables at 60F. Allowance or deduction of 1% is made for each 25° change in temperature above or below 60F.

*Includes these fields: Barbers Hill, Goose Creek, Hull, Humble, Liberty, Moss Bluff, Mykawa, Orange, Pierce Junction, Plymouth, Rabbs Ridge, Raccoon Bend (shallow sand), Refugio light, Sour Lake, Spindletop, Sugarland and West Columbia.

Above gravity and crude schedule met Jan. 9 by The Texas Co., except that Texas Co. posts $0.92 for below 20. Jan. 9, Sinclair-Prairie met above Humble schedule in full.

ROCKY MOUNTAIN FIELDS

Posted by Stanolind Oil & Gas Co.

(Effective Jan. 9, 1936)

Salt Creek, Midway and Dutton Creek, Wyo., same schedule as Stanolind posts in Oklahoma, Kansas which see.

Greybull-Torchlight	$1.28
Hes, light, Col	1.06
Hes, heavy	1.00
Hogback, N. M.	1.21

(Effective Nov. 4, 1936)

Grass Creek, heavy	$0.62
Frannie light	0.70
Frannie heavy	0.62
Hamilton Dome, Wyo.	0.57

(Effective July 20, 1936)

Elk Basin, light	$1.18
Grass Creek, light	1.18

Pondera, Mont.. (Postings discontinued July 1, 1936, but Stanolind pays price posted by Ohio Oil for Kevin-Sunburst, less 20c per bbl.)

Posted by Ohio Oil Co.

(Effective July 20, 1936)

Elk Basin, Wyo.	$1.18
Grass Creek, light	1.18
Rock Creek	$1.085

(Effective Nov. 1, 1936)

Big Muddy	1.11

(Effective June 5, 1936)

Sunburst, Mont.	$1.15

Posted by *International Refg. Co.

(Effective June 5, 1936)

Cut Bank, Mont.

Below 35°	$1.29	38-38.9	$1.37
35-35.9	1.31	39-39.9	1.39
36-36.9	1.33	40 and above	1.41
37-37.9	1.35		

*Texas Co. subsidiary.

Posted by Continental Oil Co.

(Effective Jan. 9, 1936)

Cat Creek, Mont.	$1.28

CALIFORNIA, *Posted by Standard Oil of California*

A ligravities above those quoted take highest price offered in the field. Prices effective Feb. 26, 1936, except Huntington Beach, Playa del Rey, Santa Fe Springs, Kern Front, Signal Hill (Long Beach) effective March 7, 1936, and Elk Hills, effective June 22, 1936

Gravity	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda Brea Canon	Athens Rosecrans	Dominguez	Torrance	Richfield	Whittier East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	‡Newhall and others	Mountain View	Elk Hills	Buena Vista Hills **Midway-Sunset	Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge
14-14.9	$0.80	0.79	0.74	0.78	0.79	0.80	0.76	....	....	0.80	0.76	0.76	0.77	0.78	....	0.70	....	0.70	0.70	0.65	0.70	0.70	....
15-15.9	.80	.79	.74	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	.65	.70	.70	....
16-16.9	.80	.79	.74	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	.65	.70	.70	....
17-17.9	.80	.79	.74	.78	.81	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	.65	.70	.70	....
18-18.9	.80	.79	.74	.78	.84	.80	.78	....	....	.82	.76	.76	.77	.78	....	.70	....	.70	.70	.65	.70	.70	....
19-19.9	.82	.79	.74	.82	.87	.84	.81	....	....	.85	.76	.78	.77	.78	....	.70	.70	.74	.74	.66	.74	.71	.70
20-20.9	.85	.79	.74	.85	.90	.88	.84	....	....	.88	.78	.82	.77	.80	....	....	.70	.78	.78	.68	.78	.72	.70
21-21.9	.88	.79	.74	.89	.93	.93	.88	....	....	.91	.80	.85	.77	.84	.78	....	.73	.82	.82	.71	.82	.74	.70
22-22.9	.92	.82	.74	.92	.96	.98	.92	....	....	.93	.81	.89	.79	.88	.78	....	.77	.87	.87	.74	.86	.78	.72
23-23.9	.95	.86	.77	.96	.99	1.02	.96	.84	.79	.96	.88	.93	.82	.92	.78	....	.80	.92	.92	.77	.90	.82	.76
24-24.9	.99	.91	.90	1.00	1.02	1.06	.99	.88	.81	.99	.91	.96	.85	.96	.82	....	.84	.97	.97	.80	.94	.86	.79
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	1.20	.95	....	.89	.99	.86	....	.88	1.01	1.01	.83	.98	.90	.83
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	1.05	.98	....	.92	1.03	.90	....	.91	1.06	1.06	.86	1.02	....	....
27-27.9	1.10	1.05	.88	1.11	1.12	....	1.10	1.03	.88	....	1.02	....	.96	1.06	.95	....	.95	1.10	1.10	.88	1.06	....	....
28-28.9	1.14	1.10	.90	1.14	1.15	....	1.14	1.07	.90	....	1.06	....	.99	1.10	.99	....	.99	1.15	1.15	.91	1.10	....	....
29-29.9	1.17	1.15	.93	1.18	1.18		1.17	1.12	.93	....	1.09	....	1.03	1.14	1.03	....	1.02	1.20	1.20	.94	1.14	....	....
30-30.9	1.21	1.19	.95	1.22	1.21		1.21	1.17	.95	....	....	....	1.07	1.17	1.08	....	1.06	1.25	1.25	.97	1.18	....	....
31-31.9					1.24		1.24	1.22	.97	....	....	....	1.11	1.21	1.12	....	1.09	1.29	1.29	.99			
32-32.9		*Elwood Terrace		....	1.27		1.27	1.27	1.00	....	....	....	1.14	1.25	1.16	....	1.13	1.34	1.34	1.02	Kettleman Hills		
33-33.9	....	1.28	....	....	....		....	1.32	....	....	....	....	1.18	1.28	1.20	....	1.17	1.38	1.38	1.04	....	1.19	....
34-34.9	....	1.32	....	....	....		....	1.37	....	....	....	....	1.22	1.32	1.25	....	1.20	....	....	....	....	1.23	....
35-35.9	....	1.35	....	....	....		....	1.42	....	....	....	....	1.25	....	1.29	....	....	....	....	....	....	1.27	....
36-36.9	....	1.39	....	....	....		....	1.46	....	....	....	....	1.29	....	1.33	....	....	....	....	....	....	1.31	....
37-37.9	....	1.43	....	....	....		....	1.51	....	....	....	....	1.32	....	1.37	....	....	....	....	....	....	1.35	....
38-38.9	....	....	....	....	....		....	1.56	....	....	....	....	1.36	....	1.42	....	....	....	....	....	....	1.39	....
39-39.9	....	....	....	....	....		..	1.61	....	....	....	....	1.40	....	....	....	....	....	....	....	....	1.43	....
40-40.9	....	....	....	....	....		....	1.66	....	....	....	....	1.43	....	....	....	....	....	....	....	....	....	....

F.O.B. Standard Pipe Line

*F. o. b. ship.
‡Also McKittrick, Kern River, Kern Front and Round Mountain $0.70 thru 19.9 gravity; no higher gravity quoted. **Except Lakeview Area.

TRANSACTIONS IN OIL STOCKS ON NEW YORK STOCK EXCHANGE

1935 High	1935 Low	1936 High	1936 Low	Listed Shares	Par Value	Company	Current Dividend	Last Div. Paid	Transactions Week Ended Dec. 5, 1936 Sales Shares	High	Low	Last	Week's Change
80	48½	125½	75	788,675	N.P.	Amerada Corp.	50cQ	Oct. 31, 36	7,700	105	98½	104⅜	+ 2⅜
44	29¾	51⅛	36	2,290,412	$25	Associated Oil Co.	25c	May 1, 36					
28	20⅛	35⅛	26⅝	2,664,901	25	Atlantic Refining Co.	25cQ	Sept. 15, 36	13,900	31⅞	30¼	31¾	0
....	....	118	109	.....	....	do pfd A	....	.....					
14¾	5⅞	20¾	14⅛	2,247,974	5	Barnsdall Corp.	20c	Nov. 2, 36	39,600	*20¾	19¼	20½	+ ⅝
9⅞	6¾	30	8¼	1,444,970	N.P.	Colonial Beacon Oil Co.	....	.....	30	25	24¾	25	— 5
12¼	6½	15¼	11½	13,983,287	N.P.	Consolidated Oil Corp.	40c	Nov. 16, 36	113,600	14½	13⅜	14½	+ 1⅛
112½	108½	106⅛	101	132,771	$100	do pfd	$1.25Q	Dec. 1, 36					
35	15⅜	39½	28⅛	4,682,662	5	Continental Oil Co.	50c	Oct. 31, 36	32,300	*39½	37	39¼	+ 1½
22½	11⅜	34⅝	21¼	413,333	$10	General Asphalt Co.	....	.....					
7	1½	12¼	6⅜	1,098,618	25	Houston Oil Co. v.t.c.	....	.....	42,000	11⅛	10	11⅛	+ ½
5¼	2⅝	15⅞	4⅛	1,207,132	10	Indian Refining Co.	....	.....	2,700	13½	12⅛	13	0
1⅞	⅜	....	....	1,309,060	N.P.	Louisiana Oil Ref'g. Corp.	....	.....					
15	4½	51½	13	40,000	$100	do pfd	....	.....	910	35	31⅛	33½	+ 1
3	1	6¾	2¼	330,000	N.P.	Maracaibo Oil Exploration Co.	....	.....	7,000	5	3⅞	4¾	+ ⅝
20½	9½	30⅞	17¼	1,855,912	$10	Mid-Continent Pet. Corp.	75c	Dec. 1, 36	7,100	29½	27¾	29¼	+ 1¼
17¾	10⅜	26¼	16¾	1,399,345	N.P.	Mission Corp.	....	.....	3,500	23	21½	22½	+ ½
14¼	9¼	17½	12¼	6,563,377	N.P.	Ohio Oil Co.	25c	June 15, 36	115,700	16¼	14¼	16¼	+ 1⅜
21	10¾	20⅝	12¼	4,699,885	$5	Pan Amer. Pet. & Transp. Co.	....	.....	3,000	14¼	13¼	13¼	+ ⅜
1⅞	½	4¼	1⅜	199,370	N.P.	Panhandle Prod. & Ref'g. Co.	....	.....	9,400	3⅝	2¾	3⅝	+ ¾
20	6½	74½	18½	17,994	$100	do pfd	....	.....	560	64¾	56¼	64¾	+ 2
14	7⅝	18	12⅜	2,153,444	5	Petroleum Corp. of America	25c	Sept. 30, 36	27,500	17	14¾	17	+ 1¾
40	13¾	49⅜	38⅛	4,152,836	N.P.	Phillips Petroleum Co.	$1.00C	Dec. 1, 36	25,900	47½	45⅛	47½	+ 1¼
1¼	¼	2¼	⅞	1,184,817	$25	Pierce Oil Corp.	....	.....					
8	2¾	17	8	150,000	100	do pfd	....	.....	5,700	14⅜	12	14¼	+ 2
1¾	⅝	2½	1½	2,500,000	N.P.	Pierce Petroleum Corp.	....	.....	43,700	2½	2⅛	2½	+ ⅛
13	6½	22¾	11⅞	1,050,000	$5	Plymouth Oil	25cQ	Sept. 30, 36	41,100	*22¾	19¾	22¾	+ 2¾
17	5⅞	24⅞	16¼	3,038,370	N.P.	Pure Oil Co.			57,300	19⅛	17⅜	19⅛	+ ⅛
103	34⅜	118	91¼	167,640	100	do 6% pfd	$1.50	Oct. 1, 36	900	99	98⅜	99	+ ½
119⅞	49⅝	133½	103	130,000	100	do 8% pfd	$2.00	Oct. 1, 36	160	111	109⅛	111	+ 1
48½	29½	57⅝	48⅜	425,342	a	Royal Dutch Co. (N. Y. shares)	$1.70	Aug. 1, 35					
36⅛	20¾	42½	30½	1,244,383	N.P.	Seaboard Oil of Del.	25c	Sept. 15, 36	16,500	37½	33¾	37½	+ 1⅞
39	20⅜	48	38½	56,148	£2	Shell Transport & Trading Co.	$1.237	July 24, 35					
16½	5½	28	14⅜	13,070,625	N.P.	Shell Union Oil Corp.			14,300	27	25¼	26⅝	0
111	63⅛	127½	110½	400,000	$100	do pfd. w.w.	$1.37½	Oct. 1, 36	7,800	125¼	123½	125¼	— ½
18¾	4¾	6¾	3½	461,000	10	Simms Petroleum Co.	**$1.00	July 31, 36	1,500	4	3¾	4	0
20½	6½	39	19½	1,008,549	15	Skelly Oil Co.			11,800	*39	36	39	+ 2⅛
116¼	60	132	116	120,000	100	do pfd	$1.50	Nov. 2, 36	1,800	125	124	125	0
15¾	10⅝	17½	12½	31,151,075	15	Socony Vacuum Oil Co.	25c	Sept. 15, 36	61,000	16⅛	15½	16	— ⅛
116	111	113½	109⅟₂	764,925	100	S. O. Export Corp. pfd.	$2.50 S.A.	June 30, 36					
41⅛	27¾	47⅝	35	13,014,754	N.P.	S. O. California	30c	Sept. 15, 36	35,400	41¼	38	41	+ 2¼
33⅜	23	45¼	32¾	15,215,677	$25	S. O. Indiana	50c	Sept. 15, 36	24,700	45⅛	42⅝	44¾	+ 1
32	20	30⅜	25	145,441	10	S. O. Kansas			300	30½	29	29	— 1
52⅜	35¾	70⅛	51⅛	26,200,825	25	S. O. New Jersey	75c	June 15, 36	46,400	66¾	64¾	66⅜	+ ⅛
77	60½	91	72	2,019,093	N.P.	Sun Oil Co.	25cQ	Sept. 15, 36	900	77	76	76	— ¾
121	115½	125	118	100,000	$100	do pfd	$1.50Q	Dec. 1, 36	40	125	125	125	0
3½	1⅝	6¾	3	966,979	$1	Superior Oil Corp. (Del.)			64,100	5⅛	4⅛	5⅛	+ 1
30¼	16½	50⅜	28⅞	9,851,236	$25	The Texas Corp.	50c	Oct. 1, 36	44,100	50¼	48¼	49⅝	+ 1
9¼	3¼	15¼	7½	930,570	10	Texas Pacific Coal & Oil Co.	25c	Aug. 1, 36	18,400	13⅝	12	13⅛	— ¼
15⅞	7⅝	21⅝	14⅜	5,998,919	N.P.	Tide Water Associated Oil Co.	15c	Dec. 1, 36	9,400	20⅛	19⅛	20	0
104½	84	106½	100⅝	695,503	$100	do pfd. C. T. V.	$1.50	Oct. 1, 36	900	105	104⅜	105	+ 1½
48	26¾	60	51	2,191,823	N.P.	Tide Water Oil Co.	70c	Nov. 17, 36					
24	14¾	28½	20⅜	4,386,070	$25	Union Oil of California	25cQ	Nov. 10, 36	14,700	25¼	23⅝	25	0
26½	20¼	31⅝	22⅝	1,200,000	N.P.	Union Tank Car Co.	30cQ	Dec. 1, 36	500	27¾	27	27½	— 1
1⅝	⅝	2⅞	⅝	759,538	N.P.	Warner Quinlan Co.	....	.....	13,800	2	1½	1⅝	— ⅜
3⅛	1	5¼	2¾	431,443	$5	H. F. Wilcox Oil & Gas Co.	....	.....	23,200	5⅛	4	5	+ ¾

*New high. †New low. Ex-div. **Dividends of liquidation. ‡ Stock dividend. a Par 33 1/3 florins.
C Unclassified.

STANDARD OIL STOCKS ON NEW YORK CURB MARKET

1935 High	1935 Low	1936 High	1936 Low	Listed Shares	Par Value	Company	Current Dividend	Last Div. Paid	Transactions Week Ended Dec. 5, 1936 Sales Shares	High	Low	Last	Week's Change
16	6	18	12¼	36,000	$25	Borne Scrymser Co	75c	Oct. 15, 36	450	15	15	15	— ¼
42½	30½	50	39¾	200,000	50	Buckeye Pipe Line Co.	75cQ	Sept. 15, 36	200	48	46	46	— 2½
157	115	124¾	108⅞	120,000	25	Chesebrough Mfg. Co.	$1.50	Sept. 30, 36	50	118	118	118	+ ¼
23¾	10	34¾	19⅞	6,974,356	$5	Creole Petroleum Co	25c	July 15, 36	17,800	34	31¼	32½	— ⅛
38	33¼	47	39	50,000	$50	Eureka Pipe Line Co.	$1Q	Nov. 2, 36	50	46	46	46	— ½
64	44	76½	57	8,985,662	N.P.	Humble Oil & Refg. Co.	50cQ	Oct. 1, 36	8,500	74½	71⅜	74	+ 1¾
22½	15⅜	24½	20	26,965,078	N.P.	Imperial Oil Ltd.	°25cS	June 1, 36	10,900	21½	19¾	20½	— ½
22½	15⅞	24⅜	20⅛	.....	N.P.	do registered	25cQ	June 1, 36	100	20½	20⅛	20⅛	— ⅛
6⅛	3⅝	9¾	5½	300,000	$10	Indiana Pipe Line Co.	40c	Nov. 14, 36	800	8⅝	8⅛	8⅛	— ⅛
39¾	28	39⅜	32⅝	14,324,088	N.P.	International Pet. Co.	°75cS.	June 1, 36	14,800	34¾	†32⅝	34¾	+ ½
....	....	36½	33⅜	.....	....	do registered	....	.....					
10⅝	6¾	15¾	9¼	509,000	$12.50	National Transit Co.	40c	June 15, 36	1,000	10⅝	10⅛	10¼	— ⅜
4⅞	3	6¼	4¼	100,000	5	New York Transit Co.	15c S.A.	Apr. 15, 36					
8	5¼	9½	4⅞	120,000	10	Northern Pipe Line Co.	15c	July 1, 36	300	*9¾	9⅜	9¾	+ ¼
107¼	90¼	110⅜	104⅛	562,122	100	Ohio Oil Co. pfd.	$1.50Q	Sept. 15, 36	300	109¼	108½	108½	+ ¼
11	5½	8	5½	400,000	25	Penn Mex Fuel Co.	....	Dec. 22, 33	100	6⅝	6⅝	6⅝	+ ⅛
34½	21⅝	42⅛	32¼	1,142,671	25	South Penn Oil Co.	60c	Sept. 30, 36	1,600	43	42	43	+ 1
5	3⅞	7⅞	3⅞	100,000	10	Southern Pipe Line Co	10c	Sept. 1, 36	200	4¼	4¼	4¼	+ ⅛
56	45¼	60	45	35,000	50	South West Pa. Pipe Lines	$1.00	Oct. 1, 36					
24	18	23⅛	17⅛	2,604,801	10	S. O. Kentucky	35c	Sept. 15, 36	4,700	20¼	19¼	19½	— ¾
12	7¾	14⅝	11	182,803	25	S. O. Nebraska	....	June 20, 34	600	13½	13¼	13¼	— ⅜
23⅝	11½	40	21¾	753,740	25	S. O. Ohio	25c	Oct. 15, 36	8,800	39¼	36¼	36¼	— 1
99½	89	107½	97	120,000	100	do 5% pfd.	$1.25Q	Oct. 15, 36					
6	2¼	13¼	5⅝	34,158	25	Swan Finch Oil Corp.	87½c	Mar. 16, 36	300	*13¼	10	13¼	+ 3¼

*New high. †New low. °Imperial Oil Spec. 37½c June 1, 36. International Pet. Spec. 50c June 1, 36.
x Ex dividend.

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Oil and Royalty Stocks on New York Curb

1935 High	1935 Low	1936 High	1936 Low	Par Value	Company	Transactions Week Ended Dec. 5, 1936 Sales Shares	High	Low	Last	Week's Change
1/16	3/16	1 7/16	3/16	N.P.	American Maracaibo	50,700	1 1/16	1	1 3/16	+ 1/16
3 5/8	5/8	7 3/8	3 1/4	N.P.	Arkansas Nat. Gas	16,500	6 1/2	5 3/8	6 1/2	+ 1 1/4
3 3/4	5/8	7 3/4	3 1/4	N.P.	do A	45,600	6 5/8	5 1/2	6 1/2	+ 7/8
7 1/2	2 1/4	10 3/4	7 1/8	$10	do pfd	18,700	*10 3/4	9 1/8	10 3/4	+ 1 5/8
16 3/4	14 1/2	32 3/4	16 1/2	N.P.	British Amer. Oil coup.	.....	.....	.....	.....	.....
.....	.....	26 1/4	21 3/8	N.P.	do registered	.....	.....	.....	.....	.....
4 1/4	1 5/8	4 7/8	2	$1/4	Carib Syndicate	10,000	2 3/8	2 1/4	2 1/4	0
3 1/4	1/4	7 3/8	3	N.P.	Cities Service	45,900	3 3/8	3 1/2	3 5/8	— 1/8
47 1/4	6 1/2	66	41 1/2	$100	do pfd	2,500	49 1/2	45 3/8	46 3/4	— 2
4 3/8	5/8	6 1/2	3 3/4	10	do pfd. B	.....	.....	.....	.....	.....
43	6	63	40	100	do pfd. BB	.....	.....	.....	.....	.....
2 1/8	1/2	4	5/8	N.P.	Colon Oil Corp	.....	.....	.....	.....	.....
1 1/2	1/8	9 3/8	3/4	N.P.	Columbia Oil & Gas vtc	119,000	*9 3/8	8	8 5/8	+ 5/8
3	1	5	2	$1	Consolidated Royalty	1,300	3	2 3/4	3	+ 1/4
1 1/2	1/4	4 1/8	1 1/2	N.P.	Cosden Oil	16,600	3 1/2	2 3/4	3 1/8	— 1/8
6 1/4	3/4	28 1/2	6 1/2	$100	do pfd	2,000	28 1/2	25 3/4	27 1/2	0
2 1/8	5/8	2 3/4	1 3/4	N.P.	Crown Central Pet	3,600	2	1 7/8	2	+ 1/8
8 7/8	4	16 3/4	9	N.P.	Darby Petroleum	7,300	*16 3/4	15 1/2	16 3/4	+ 3/4
2	3/4	6 3/4	1 7/8	N.P.	Derby Oil & Refg	2,400	6 1/8	5 1/4	6	— 1/8
20	20	81	25 1/2	N.P.	do pfd	.....	.....	.....	.....	.....
74 3/4	50 1/4	117	72	$25	Gulf Oil Corp	6,400	109 3/4	106 1/8	108 1/2	0
4 1/4	1 3/8	6 1/4	2 5/8	N.P.	Indian Ter. Illg. Oil A	200	3 3/4	3 1/4	3 3/4	— 3/8
4 1/4	1 1/8	6 1/2	3	N.P.	do B	500	4	4	4	— 1/8
3	1 7/8	5 3/8	2 5/8	N.P.	Kirby Petroleum	2,200	4 1/4	3 7/8	4 1/4	+ 1/4
3/4	1/4	2	1/2	$25	Leonard Oil Dev	11,400	1/2	1/2	1/2	+ 1/8
† 8 1/4	3 1/2	15 1/2	7 3/8	N.P.	Lion Oil Refg	8,500	14 3/4	14 3/8	14 1/2	+ 1/8
10 7/8	4 1/2	14 1/4	9 7/8	N.P.	Lone Star Gas	4,800	12 1/8	11 3/8	11 1/2	— 5/8
19	4	22 1/4	13 3/4	N.P.	Margay Oil Co	.....	.....	.....	.....	.....
2 3/8	7/8	4 1/8	1 1/2	N.P.	Mexico-Ohio Oil	300	1 7/8	1 7/8	1 7/8	+ 1/8
3 3/8	1 7/8	4 3/4	1 7/8	N.P.	Michigan Gas & Oil	600	3	2 5/8	2 7/8	— 1/8
3 7/8	7/8	6	3	N.P.	Mid. States Pet. A vtc	4,700	5 3/4	5	5 1/2	+ 1/2
1/8	1/4	2 5/8	1/8	N.P.	do B vtc	6,800	1 5/8	1 3/8	1 1/2	+ 1/8
1/2	1/4	1/8	1/4	$1	Mountain & Gulf	.....	.....	.....	.....	.....
5 3/4	4 1/2	8 3/8	5	10	Mountain Producers	5,600	6 3/4	6	6 1/8	— 1/8
20	11 3/4	23	17 3/4	N.P.	National Fuel Gas	4,400	19	17 3/4	17 3/4	— 1 1/8
3 1/4	2	4 5/8	2 7/8	$5	New Bradford Oil	2,700	*4 5/8	4 1/8	4 1/4	— 1/4
4	2	8 3/8	3 3/8	N.P.	North Central Texas	100	5 1/2	5 1/2	5 1/2	— 1/8
1/8	1/8	1/8	1/8	N.P.	North European	28,100	1/8	1/8	1/8	0
12 3/4	9 3/8	15 3/4	13 1/2	N.P.	Oil Stocks Ltd. A	100	*15 3/4	15 3/4	15 3/4	+ 1/2
4 3/8	1 1/4	8 3/8	3 1/4	N.P.	Pantepec of Venezuela	86,400	*8 3/8	7	8	— 1/8
3/8	1/8	1	1/16	N.P.	Producers Royalty	30,500	1/8	1/16	1/16	+ 1/16
3 3/4	1/2	20	3	N.P.	Red Bank Oil	13,000	*20	14 3/4	16 1/2	— 1 3/8
1/2	1/2	1 1/2	1/8	N.P.	Reiter-Foster Oil	3,700	3/4	5/8	3/4	+ 1/8
2 7/8	1/2	2 3/4	1/4	$25	Richfield Oil pfd	.....	.....	.....	.....	.....
5	1 1/2	19 1/4	4 1/2	$1	Root Petroleum	11,000	15	14	14 7/8	+ 5/8
15 1/8	8	23	14 1/2	20	do conv. pr. pfd	100	17 3/4	17 3/4	17 3/4	— 1/2
.....	.....	39	26 3/4	$10	Royalty Corp. pfd	.....	.....	.....	.....	.....
2 1/2	5/8	4 3/4	1 7/8	N.P.	Ryan Consolidated	1,200	3 3/8	3	3 3/8	+ 1/8
1	1/8	2 1/8	1/2	$10	Salt Creek Consolidated	.....	.....	.....	.....	.....
7 1/2	5 1/2	10	5 3/4	10	Salt Creek Prod	.....	.....	.....	.....	.....
6 7/8	4 1/4	11 1/4	6 1/4	N.P.	Southland Royalty	2,000	8 3/8	8 1/8	8 3/8	+ 1/8
2 7/8	7/8	5	2 5/8	$5	Sunray Oil	20,100	3 3/4	3 1/4	3 3/8	+ 1/8
.....	.....	49	47 1/2	...	do pfd	.....	.....	.....	.....	.....
4	2	6 7/8	4 1/4	$1	Swiss Oil Corp	.....	.....	.....	.....	.....
6 7/8	5	9 3/4	4 1/2	N.P.	Texon Oil & Land	2,900	6 1/4	6	6 1/8	0
.....	.....	7	2 5/8	...	Venezuela Mex	2,200	6 1/4	5 3/4	6 1/8	— 1/8
2 1/4	1/8	3 1/2	1 1/4	$1	Venezuela Petroleum	5,500	2	1 3/4	1 3/4	— 1/4
6 1/8	3 1/2	11	5 5/8	$1	Woodley Petroleum	400	8 7/8	8 7/8	8 1/8	+ 1/8

*New high. †New low.

New York Bonds

Week Ended Dec. 5

	High	Low	Last	Change
Atlantic Refg. deb. 5s	103	103	103	+ 1/4
Houston Oil 5 1/2s	102 1/8	101 3/4	101 3/4	0
Pan Amer. Pet. of Calif. 6s	54 1/4	46	54	+8 1/2
do 6s ctfs	54 1/4	45 1/2	53 1/8	+7 1/8
Pure Oil 4 1/2s w.w.	117 1/2	114 1/2	117 1/2	+2
do 4 1/2s x.w.	105 1/4	105	105 1/4	+ 1/2
Richfield Oil of Calif. 6s	63	51 1/2	63	+10 1/4
do 6s ctfs	62 5/8	51 1/4	62	+9 1/2
Shell Union Oil 3 1/2s	101	100 1/2	101	+ 1/8
Skelly Oil 4s	102 1/2	102 1/4	102 3/8	+ 1/8
Union Oil of Calif. 6s	122	121 1/2	121 1/2	0
do 4s	106 1/2	105	105 3/4	— 3/4
Warner-Quinlan 6s	59	51	57	+4

Pittsburgh Stock Exchange

Transactions Week Ended Dec. 4, 1936

	Sales	High	Low	Last	Change Over Week
Ark. Nat. Gas	50	6	5 1/2	6	+ 1/2
do pfd	876	10 1/2	8 7/8	10 1/2	+1
†Cities Serv	230	3 3/4	3 1/4	3 3/4	+ 1/4
Col. Gas & Elec	1,350	18 5/8	17 1/2	17 5/8	— 3/4
†Col. Oil & Gaso	2,199	9	7 1/2	8 3/8	+1 3/8
Lone Star Gas	1,071	12 1/8	11 3/4	11 3/4	— 1/8
Mountain Fuel Supply	7,012	6 7/8	6 3/8	6 3/8	— 1/2
Phoenix Oil	14,240	.08	.03	.08	+ .05
do pfd	3,720	.09	.07	.09	+ .05
Pgh. Oil & Gas	400	1	1	1	— 1/8
Plymouth Oil	334	21 3/8	20	21 3/8	+2 3/4
Shamrock Oil & Gas	3,615	6 1/8	5 3/4	5 7/8	— 1/8
do pfd	100	12 3/4	12 3/4	12 3/4	— 1/4
†Standard Oil of N. J.	223	66 1/4	64 7/8	66 1/8	0
Waverly Oil Wks. A	50	2 1/2	2 1/2	2 1/2	+ 1/4

†Unlisted.

Oil Dividends

Dividends Waiting Payment

Company	Amount		Payable
Gulf Oil Corp. Stk	100%	Dec. 10	Dec. 21
Humble Oil & Ref. Co. q	25c	Nov. 25	Dec. 26
do extra	25c	Nov. 25	Dec. 26
Indiana Pipe Line	20c	Dec. 4	Dec. 17
Mission Corp. Initial	45c	Dec. 2	Dec. 18
Northern Pipe Line	35c	Dec. 2	Dec. 16
Ohio Oil	35c	Nov. 14	Dec. 15
do pfd. q	$1.50	Nov. 14	Dec. 15
Pacific Western Oil	65c	Dec. 7	Dec. 18
Pan American Pet res. *	60c	Dec. 7	Dec. 21
Pure Oil Co. 5 1/2% pfd. q	$1.25	Dec. 10	Jan. 1
do 6% pfd. q	$1.50	Dec. 10	Jan. 1
do 8% pfd. q	$2.00	Dec. 10	Jan. 1
Seaboard Oil q	25c	Dec. 1	Dec. 15
Shell Union resumed	25c	Dec. 4	Dec. 15
do pfd	$26.125	Dec. 4	Dec. 15
Skelly Oil 6% pfd. ac	$25.50	Dec. 1	Dec. 21
do 6% pfd. q	$1.50	Jan. 5	Feb. 1
South Penn Oil extra	52 1/2c	Dec. 15	Dec. 29
do q	37 1/2c	Dec. 15	Dec. 29
S. O. Ohio sp	$1.25	Dec. 10	Dec. 21
do q	25c	Dec. 10	Dec. 21
do pfd	$1.25	Dec. 31	Jan. 15
Sun Oil Co. stock	6%	Nov. 25	Dec. 15
do q	25c	Nov. 25	Dec. 15
Texas Corp. extra	25c	Dec. 1	Dec. 21
Texas Corp q	25c	Dec. 1	Jan. 1
Tide Water Assoc. pfd. q	$1.50	Dec. 4	Jan. 2

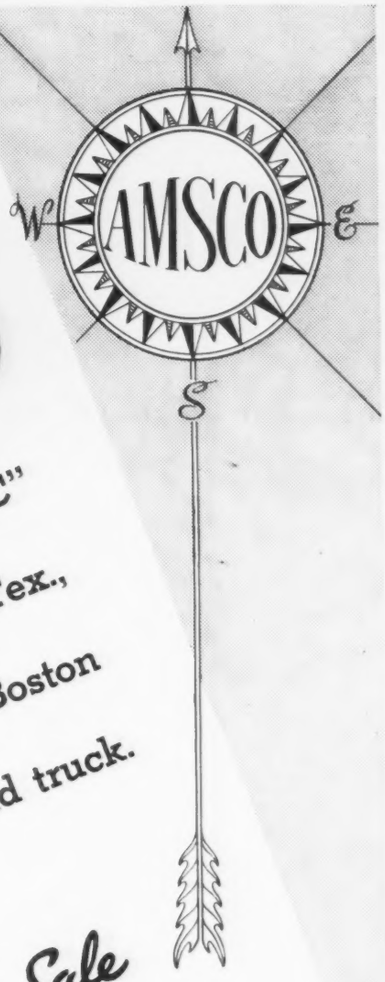
**Paid 75c quarterly previously. b Unclassified.
*Payable in 7-yr. 3 1/2% notes.

New York Curb Bonds

Week Ended Dec. 5

	High	Low	Last	Change
Cities Serv. 5s '66	76	73 3/4	75	0
Cities Serv. 5s '50	75 7/8	73 3/4	73 7/8	—1 3/8
Cities Serv. G. 5 1/2s '42	103	102 1/2	102 1/2	0
Empire O & R 5 1/2s '42	90 3/4	89 1/2	90 3/4	+ 3/4
Valvoline Oil 7s '37	98	98	98	—1

FUEL OILS



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Conservation the Keynote

(Above)

Oil producers from over the country met to talk things over in Oklahoma City. In the center is Charles F. Roeser, president of the Independent Petroleum Association of America happy at the large attendance at the convention. On the left is Joe I. Cromwell, Oklahoma City, veteran wildcatter, who discovered the Cromwell pool and who drilled the first producing well at Oklahoma City, years before the big pool was found. On the right is Ed McAdams, Los Angeles

(Above right)

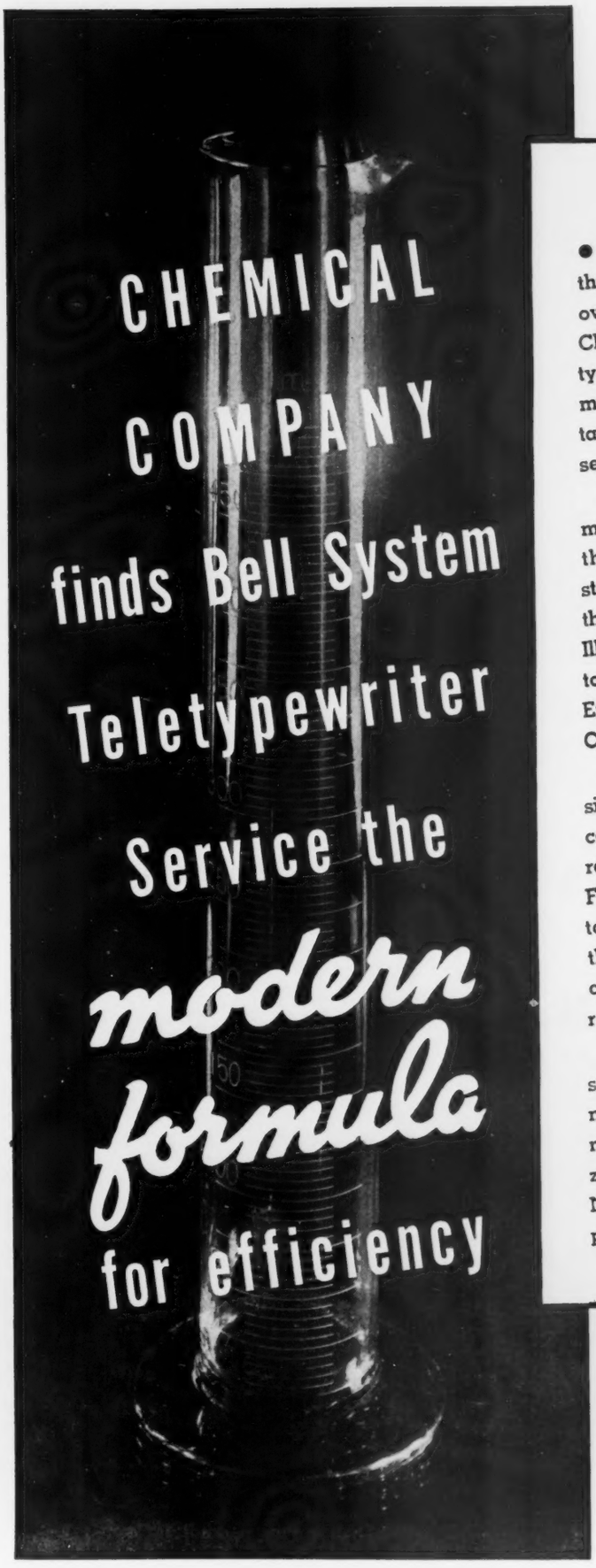
The Independent Petroleum Association was well represented at the recent American Petroleum Institute convention at Chicago; so A. P. I. President Axtell J. Byles, center, and Executive Vice-President William R. Boyd, left, returned the visit. At right is Frank Buttram, Oklahoma City operator, who had charge of a thousand entertainment details of the convention

(Right)

A. J. Crites, manager of the Anchor Oil Co., Maricopa, Cal., told the convention why restriction of imports was essential to the program of stabilization which the I.P.A.A. sponsors. He is shown here smoking his cigar, while George A. Hill, Jr., of the Houston Oil Co., gestures with his

Members of the Interstate Compact Commission, and observers and members of state regulatory bodies held a pow-wow before the formal meeting of the commission held at Oklahoma City at the time of the convention of the Independent Petroleum Association of America. Seated, left to right are, Reford Bond, chairman of the Oklahoma Corporation Commission; J. R. Pemberton, oil umpire of California; Col. Ernest O. Thompson, chairman of the Texas Railroad Commission and of the Interstate Compact Commission; Homer Hoch, chairman of the Kansas Corporation Commission; Elwood Fouts, attorney, Houston, representing Gov. Allred of Texas

Standing, left to right: A. S. J. Shaw, member of the Oklahoma commission; Warwick M. Downing, representing Colorado; Wendell Stephens, Findlay, observer for Ohio; Walter A. Jones, Pittsburgh, observer for Pennsylvania; Art L. Walker, secretary of the compact commission; Tom Anglin and W. J. Holloway, representatives of the Oklahoma compact board

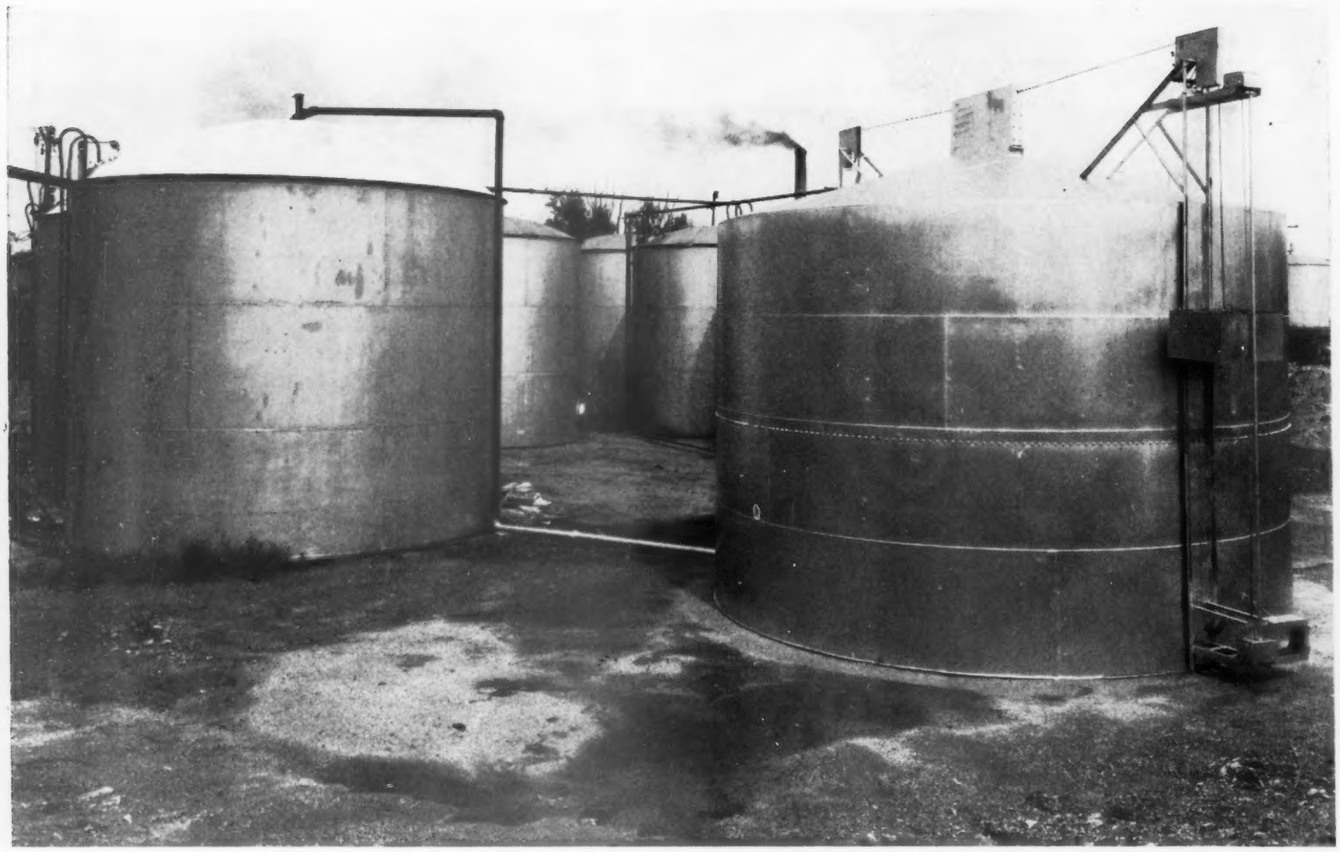


● THE manner in which one industry utilizes the accomplishments of another to increase its own efficiency is demonstrated by Monsanto Chemical Company's use of Bell System Teletypewriter Service. Monsanto needed faster, more accurate communication between distant offices and plants. A Bell System representative was called in to analyze the problem.

A study was made of the company's communication needs and it was recommended that teletypewriter service be installed at strategic points — private line service between the St. Louis headquarters and the Monsanto, Illinois, plant; teletypewriter exchange service to link production plants at Anniston, Ala., Everett, Mass., Camden, N. J., and Dayton, Ohio, with St. Louis and the New York office.

Results: Orders typed at one office are now simultaneously, accurately reproduced at any connected point, on the Monsanto Company's regular forms, with all necessary carbons. For example, St. Louis gives orders to Anniston and receives information on shipments on the same connection. Shipments are made and invoices mailed the same day orders are received. Customers get quicker service.

A Bell System representative will be glad to study your communication problem—co-ordinate and speed up the transmission of information between separate units of your organization—whether 300 yards or 3000 miles apart. No obligation. Simply call your nearest telephone office.



Gasoline and gasoline vapor storage at the Smith Oil & Refining Co. bulk plant in Rockford, Ill. Vapors are collected through a pipeline to the vapor storage tank in the right foreground. A piston in the vapor tank is counterweighted by the cable over sheaves at the center and edges of the tank roof

VAPOR SAVING SYSTEM

Cuts Jobber's Bulk Plant Losses

ROCKFORD, Ill.

FOR three generations the Smith Oil & Refining Co. has been marketing automotive petroleum products in the Rockford, Ill., territory, alert to changes in the main plant here for more efficient operations. Its latest improvement on gasoline storage is a vapor saving system to reduce evaporation losses and fire hazards.

No longer are gasoline vapors expanded out of storage tanks into the air, or raw air sucked in as the tanks are emptied or the gasoline there contracts. All gasoline tanks now are connected by a pipeline to a central vapor storage tank, with vapors pushed into this storage by gasoline expansion and returned to gasoline tanks on contraction of products or as the volume in the tanks is lowered.

The vapor saving system at Smith's Rockford plant is an adaptation of the Wiggins balloon system long used in refinery storage. For the relatively small storage capacity of jobber bulk plants the new development is the piston type balloon, with the piston riding the vapor level in a permanent vapor storage tank.

Storage for six grades of gasoline in the Smith plant is connected by a pipeline, as shown in the accompanying diagram. There are two rows of 25,000-gallon vertical tanks, and another row of three 50,000-gallon tanks.

A 3-inch line for vapors ties one row of 25,000-gallon tanks into the second row, with a short section of 2-inch line connecting the sixth 25,000-gallon tank. The line then runs over to the row of 50,000 gallon tanks, increasing to the 4-inch line to the vapor storage tank.

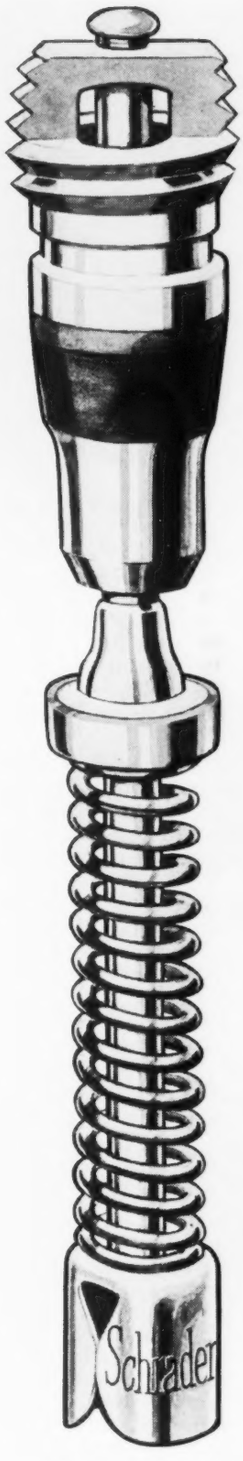
Three vents are equally spaced in the vapor collecting line. These vents operate at 3½-ounce pressure and 2-ounce vacuum. Previous to installation of the vapor storage system all tanks had ½-ounce pressure and vacuum vents, which had been placed on the tanks when the yard was rebuilt about ten years ago. All gasoline tanks were equipped with vapor proof gauges when the vapor system was installed.

Gasoline storage is 300,000 gallons and a vapor storage tank of 6000 cubic feet was installed to handle the normal evaporation off this volume of moving stock. The vapor storage is a cylindrical steel shell, with a piston moved up and down by vapors vented in and out of the tank. The outer edge of the piston is connected to the shell with a flexible material and with a spring riding in the loop to seal the piston in any position.

The piston is counterweighted. Two cables rise from the piston through the roof of the tank over hooded sheaves to another set of sheaves on the edge of the roof. Each cable is fastened to a box and raises and lowers the box outside the shell. The boxes are filled with gravel, the amount carried in the boxes determining the amount of vapor pressure required to move the piston. When the vapor storage is completely filled, or emptied, one of the

REPLACEABLE TIRE VALVE

Schrader Type



REPLACEABLE TIRE VALVE
Schrader Type

Standard of the Automotive Industry for 40 Years

To OUR KNOWLEDGE, the Schrader type of *Replaceable Tire Valve* is today the only standard item *in world-wide use* in the automotive industry. One spark-plug will not fit all cars! One light bulb will not fit all sockets! But, it is 100 to 1 that a Schrader *Replaceable Valve* will fit the Tire Valve Housing of any automobile or motorcycle tube manufactured anywhere in the world today!

For more than forty years, Schrader has made *replaceable valves* for pneumatic tires. Improvements have been made. Other manufacturers throughout the world have copied or modified the design, but basically the *replaceable valve* principle has remained unchanged and the modern *replaceable* valve of today will fit the housing of 1926 or 1936.

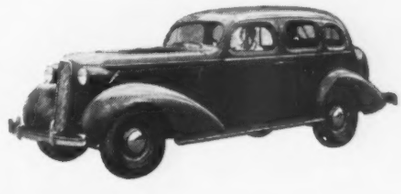
An automobile chassis, engine, or body will outlive other component parts, such as spark-plugs, light bulbs, tire valves, etc. Therefore, a *replaceable* tire valve is an absolute necessity. If, tomorrow, a tire valve failure occurs along a country road miles from town, in a few seconds the motorist can remove and *replace* the damaged valve, or, in an emergency, he can apply a closure (called a cap) firmly over the mouth of the housing and carry on. Schrader has *replaceable valves* available in every town and city throughout the United States, Canada, Great Britain and Australia. Retail price in U. S. A., five cents each in boxes of five.

More than 250 million car years of actual service are back of the Schrader Type of Replaceable Tire Valve.

PASSENGER CARS REGISTERED IN THE UNITED STATES

Years	Number
1896	16
1897	90
1898	800
1899	3,200
1900	8,000
1901	14,800
1902	23,000
1903	32,920
1904	54,590
1905	77,400
1906	105,900
1907	140,300
1908	194,400
1909	305,950
1910	458,500
1911	619,500
1912	902,600
1913	1,194,262
1914	1,625,739
1915	2,309,666
1916	3,297,996
1917	4,657,340
1918	5,621,617
1919	6,771,074
1920	8,225,859
1921	9,346,195
1922	10,862,650
1923	13,479,608
1924	15,460,649
1925	17,496,420
1926	19,237,171
1927	20,219,224
1928	21,379,125
1929	23,121,589
1930	23,059,262
1931	22,366,313
1932	20,885,814
1933	20,616,234
1934	21,524,068
1935	22,565,347
	318,265,188

*Reprinted from Automobile Facts and Figures —Automobile Manufacturers Association.



Schrader

REG. U. S. PAT. OFF.

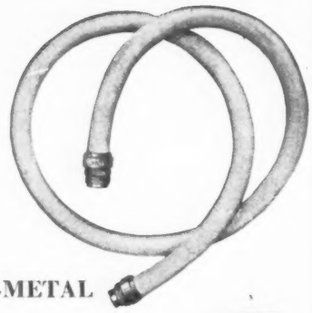
Makers of Pneumatic Valves since 1844

ELIMINATE free service with the Blo-Hot Flushing Gun. Clean differentials and transmissions quickly —thoroughly. Get 20c per quart for flushing oil.

For "freeze ups" BLO-HOT is an indispensable. Thaws radiators in 5 to 10 minutes. Heats carburetors. Quickly cleanses muck from under fenders and other parts. Dries ignition wires. Dozens of uses. Operates as a hot air blast or delivers biting, cutting spray hot vaporized oil under pressure. Mechanically simple and durable. Time saver, money maker. **Guaranteed Satisfactory.** Used by major oil companies. Send for circular.

FIRMAN L. CARSWELL MANUFACTURING CO.

501 So. Valley Rd. Kansas City, Kansas



ALL-METAL

Safety *from* Tank Car *to* Vehicle Tank

Penflex All-Metal Hose is standard for car unloading and for filling service station tanks from trucks. Here is the companion hose to continue this safety right to the owners' tanks—a real *metal hose* where the sole purpose of the rubber is to seal. Try a length!

***trust* PENFLEX**

Bul. 53-F tells why.

Pennsylvania Flexible Metallic Tubing Co.

7231 Powers Lane, Philadelphia, Pa.

counterweights being in the complete up or down position, automatically opens a volume control vent.

Another feature for the system is contemplated for next summer by the Smith company. This is to introduce an inert gas in the line to eliminate air. The system will be operating on vapor, reducing the fire hazard and corrosion on the underside of tank tops through elimination of oxygen from the system.

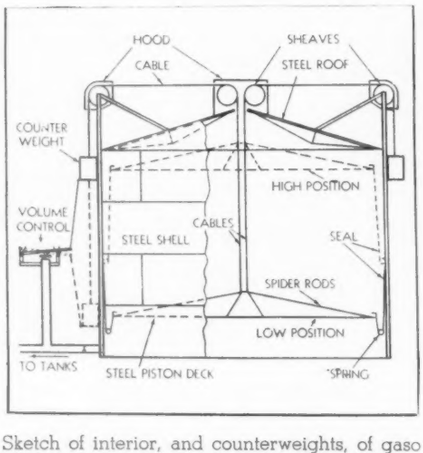
The vapor storage system was installed as a result of the company casting about for some means to reduce evaporation losses. Six grades of gasoline are handled through the plant—aviation, Ethyl, high-test, stove, regular and third grade. In standing storage, and movement through the plant, company officials termed losses "terrific". Several ideas for insulating storage against the sun beating on tanks were considered, and the vapor system was installed.

Records of operation of the vapor storage tank showed a savings of about 1100 gallons of gasoline from Aug. 24, date of installation, to Sept. 30, Stanton K. Smith, company official, reported. The saving represents about .44 per cent of the plant's gasoline throughput. Average savings in winter months will be about 750 gallons, Mr. Smith estimates, with maximum reduction in breathing losses anticipated during summer months.

Data on evaporation savings was determined through recordings of the travel of the piston, showing the breathing of storage, and a daily analysis of the quantity of vapor in the mixture in the balloon. It will be noted that estimates of savings are based on vapors in the vapor storage tank. Storage in the plant is working, not standing, storage, and during the day tank cars may be unloading to storage while trucks are being filled.

In addition to trapping evaporation and returning vapors to tanks, Mr. Smith points to several other savings in the system. Losses in blending motor fuels have decreased he reports, while such losses prior to installation of the system amounted to as much as 3 per cent. Condensation in storage tanks is reduced also, he continued, as, when the tanks are working on vacuum, a vapor-air mixture is being sucked in instead of moist air.

A reduction in the fire hazard is reported also by Mr. Smith, as gasoline vapors now are trapped in storage and not vented into the air.



Sketch of interior, and counterweights, of gasoline vapor storage tank at Smith bulk plant

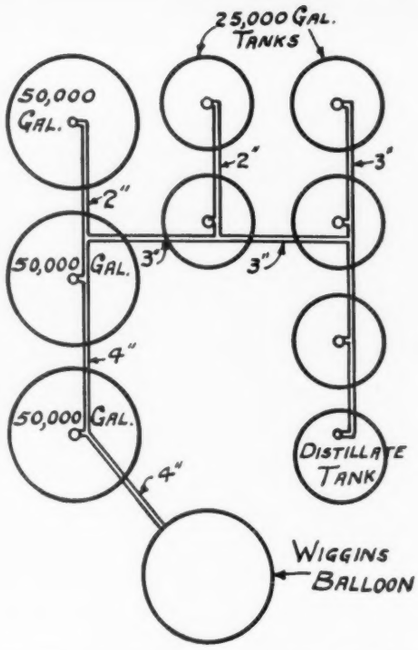


Diagram of vapor pipeline on gasoline storage tanks at Smith Oil & Refining Co. bulk plant

Stations Can Share The Holiday Trade

ST. LOUIS, Mo., Dec. 5.—Service station operators might well take a page from the merchandising book of department stores during the Christmas season. Every station lends itself well to decoration with colored streamers, window displays, colored floodlights and pump island lights.

Also every station has many items that will make ideal Christmas gifts, such as heaters, an order for 25 gallons of gasoline, a five-quart can of oil, or one of several accessories that are common needs on automobiles.

With an eye to the Christmas shopping season, and to the improved financial position of shoppers this year, Edward R. Sneed, of the marketing division of the Socony-Vacuum Oil Co., St. Louis, has sent out the following suggestions to his dealers, as methods for getting additional business during the holiday buying rush.

"1. Take a good look at your station—inside and out—your equipment, signs and stock, and see that everything is clean, neat, and attractive in appearance.

"2. Invest in some outside and inside Christmas decorations—trees, colored lights, etc., and doll up your station so that it actually reeks with the Holiday spirit and atmosphere. This money will not be wasted. Ornaments, lights, etc., can be carefully stored away for next year. Downtown merchants literally clean up in profits during Christmas shopping seasons, because of this form of merchandising which warms the hearts and quickens the pulse of old and young alike, and draws them in to purchase. Neighborhood stations can get their share of sales and profits on Christmas articles they handle, if they go after this business.

"3. Decorate your windows with small

Christmas trees with lights, ornaments, tinsel, snow, etc., surrounded by suggestions for Christmas gifts. Don't allow your window display to go through the Holidays in a drab, untidy, or dusty condition. No one wants to be an ordinary country storekeeper of 70 years ago!

"4. Display prominently all the wares you have to sell, with a background of Christmas colored paper, tinsel, and so on. Wrap a radio, heater, battery, tire, horn, flashlight, spotlight, seat covers—anything—with ribbon, tie a big bow, and put on it a neat card with the words 'Merry Christmas to Dad' or 'Brother', etc. Buy some Christmas gift boxes sufficiently large to hold articles to be sold and tie them up with ribbon, etc., showing prospective customers how their gifts will look when delivered. CREATE AN URGE TO BUY!

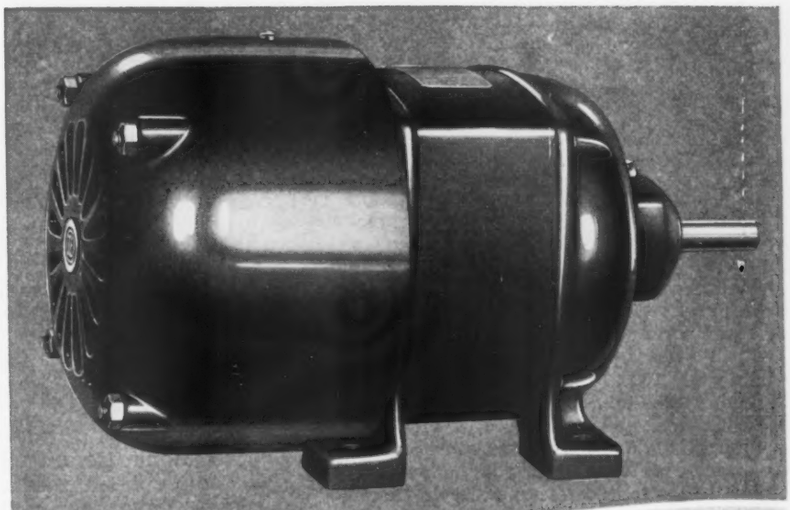
"5. Look over your stock and buy a supply of those things that you can sell. A station with nothing to offer is surely not going to sell anything. To some dealers I earnestly suggest—break away from your station for half a day and visit some successful station merchants who really get their share of business and profits while the getting is good. We want all our Dealers to succeed and to make money. The trend of public buying is toward the stations where they can buy most everything they need for their automobiles. Build up your stock with this trend.

"Downtown stores make from auto departments, large profits that can be snagged by neighborhood dealers, if they go after it. It is not necessary to have a large stock of any one article, as you know; you can get quick delivery of small orders. But, a display and reasonable stocks are absolutely necessary. People like to see what they buy. A few dealers just don't have the money and cannot get it; but many who have it or can get it, are overlooking possibilities of making money and getting ahead. Buried talents produce nothing!

"6. Send a postcard invitation to every prospect and customer to come to your station and look over your Christmas gift suggestions, and tell them what you have. In the evenings when you are not so busy, telephone them. ASK them to buy from you. You can make your own Christmas bonus!"

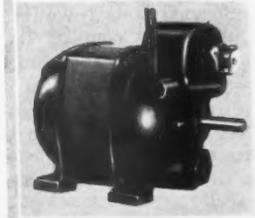
WASHINGTON, Dec. 7.—On the plea of the Southwestern Freight Bureau that a refinery at Cushing, Okla., is in "urgent need" of cracking stock which it is unable to obtain in Oklahoma, the Interstate Commerce Commission has authorized for six months a rate of 9 cents per cwt. on residuum and cracking stock from Gainesville, Texas, to Cushing. The present rate is 14 cents over the Katy and Santa Fe railroads.

As an advertising stunt, one service station operator had large size cards printed telling of his services, and then made the rounds in his neighborhood, getting permission to tack them on the garage walls of his infrequent customers to serve as constant reminders to visit his station.



IN
FOUR CHAPTERS

1. Nine billion gallons (9,000,000,000) of gas pumped by Leland explosion-resisting motors in 1935.
2. Well onto a half million (500,000) sold to gasoline pump manufacturers and major oil companies since the first one was designed.
3. For almost fifteen consecutive years by long odds the best seller in its field.
4. Out of that veritable army of units very few "casualties"—actually less than 4/10 of 1% ever having been returned for service.



That's the story. Your investigation comes next. Designs for both dispensing and bulk station service available for test purposes.

THE LELAND ELECTRIC COMPANY
Dayton, Ohio

Canadian Address Toronto
Cable Address Lelect

LELAND
explosion-resisting
MOTORS

The Street Looked Like a Ba

Road Repairs Blocked Traffic. Gallonage Dropped to Almost Nothing. Special Sales Stunts Brought Motorists Back, However. Despite these Obstacles . . . .

THE nightmare of many a station operator has been of road repair work being suddenly started on his street, blocking off his trade. In this "story", rather than article, Tom Page, a real gasoline dealer in a middle western city—though that is not his real name—tells how he overcame a desperate situation at his leased station when street repairs blocked the normal flow of business to his pumps.

In the face of continuously diminishing gallonage during this period, Tom took matters into his own hands and engaged in some merchandising practices that might make some people lift their eyebrows. He fought for business to keep the station going and he got it.

How? He tells that here in his own language.

ON APRIL 1 Tom Page leased station number 77 from his company. Immediately sales jumped. The reasons given by Page were better management, better business conditions, and new customers who preferred to trade with an independent operator.

April sales were 6570 gallons.

May sales were 7422 gallons.

On May 25 and continuing through July 8 Bayle ave. was resurfaced, a block at a time. Each day barricades were put up at either end of the block being worked and traffic routed around Ervin ave., another through cross-town street.

As people became acquainted with the fact that this work was in progress they avoided Bayle ave., with the result that Page's Service Station dropped to 6708 gallons in June where normal seasonal increase should have netted 7750 gallons.

On July 7, barricades were placed on Windsor blvd. at the city limits and at Lee ave. completely shutting off the highway, which was routed around Miles ave. Work was begun which would require many weeks to complete. Windsor was to be completely dug up, widened and repaved.

Page and other merchants in the neighborhood had known that the road work was to be done some time during the summer. Surveyors had been at work on and off for several weeks. But the first announcement they had that actual work was to begin was the arrival of a huge machine which in one day completely demolished the old pavement. After one day of wrecking Windsor blvd. looked like a battlefield.

The day the highway was closed off Page put in a call for his oil company salesman and together they sat down to dope out probable business losses. From station records they compiled the following information:

	"Gas" Sales	
	Bayle pumps	Windsor pumps
April	3180	3380
May	3603	3819
June	2706	4002

Reasoning that because the ratio between these two banks of pumps was 48 per cent and 52 per cent in April and May and that the loss on Bayle ave. in June was due to the road work previously mentioned, they arbitrarily compensated for this loss and arrived at the conclusion that, in losing the highway traffic, Page's Service Station would suffer a loss of about 52 per cent of its normal expectancy for July and August.

This done, Page and the salesman decided to reconnoiter the neighborhood and see what might be done to bring in new business to offset the expected loss. Selecting the six largest users of gasoline in the trade area they set out to see what sales resistance would be evidenced. Here are the notes which Page kept on the interviews:

Interview 1. Dry cleaning plant, 2 trucks, buys gas from brother who operates large laundry and has gas tanks in storage garage. Sympathetic about road repairs, agreed to have trucks lubricated once each month.

Interview 2. Grocery store, 2 trucks, alternates business between two service stations, each of whom are customers of his store.

Interview 3. Medium sized laundry, satisfied with present arrangement; wouldn't consider change.

Interview 4. Ford agency, buys from station more conveniently located, agreed to buy requirements for three salesmen's cars.

Interview 5. Overall laundry, new in neighborhood, agreed to have 2 trucks serviced, regularly, buy part of gas and oil.

Interview 6. Grocery store, three trucks, buys gas cheaper, took order for 15 gallons motor oil.

As a result of this half day of canvassing Page decided to keep his helper on full time and cut enough time from the night schedule to permit himelf to spend an hour each day in the neighborhood getting new business. No record was kept of the results of this plan but Page found that business could be secured in that manner and was convinced that his hour per day was well spent.

Page's helper, John Black, shared

Neighboring merchants raised their eyebrows but it was sales stunts such as this that made it possible for Tom Page to keep going, and have enough to feed his family, when his station was cut off from normal business by road repairs. This was the second sign Tom put up telling of his "special" on cigarettes. The first was 2 by 3 feet and did not attract the attention of passing motorists

Battlefield

The detour sign that led Tom Page into some unusual ways of getting customers around the sign and into his station

Page's enthusiasm and interest in selling. His personal sales record was well above average. Black was the main support of a large family and, realizing that with the loss of business at Page's Service Station he might suffer a loss of time or even be thrown out of work, accordingly he bore down harder than ever.

Page and Black entered into a friendly competition to see who could do the best job of increasing driveway sales. Using a sales plan worked up by the oil company they were successful in securing many extra gallons of "gas" and quarts of oil from the rapidly diminishing number of driveway customers.

After putting "gas" into a customer's car they would step up to the driver and say: "Your tank will hold more, shall I fill it?" They found that in at least 30% of the cases this plan resulted in the sale of a few extra gallons.

They memorized a series of answers to objections raised by customers to adding needed motor oil. Again they were successful in gaining extra business.

Each day more and more customers would realize that Windsor blvd. was being torn up, with resulting traffic congestion, and would avoid Bayle ave., taking a circuitous route to town. Fighting with their backs to the wall, Page and Black were amazed at the amount of business that they had let slip through their fingers in the past due to lack of effort. And it should be borne in mind that these two men had always ranked high in sales.

In his off-drive work Page managed to sell a few tires, lube jobs, which helped to keep the wolf from the door. But in spite of this effort business fell off to the point where Page was not able to meet his overhead. Something had to be done.

Tom Page, with the inkling of an idea, went with his oil company salesman, to a friend who had been a successful advertising man for many years. This man had put on countless promotional ideas for large companies during his years in the advertising business. Page reasoned that if anyone could help him out of his difficulties it would be this individual. Page's idea was to offer some commodity at an unusualy attractive price and advertise it, in order to get people into his station.

The oil company salesman was somewhat dubious as to whether this plan would do enough good to keep the station out of the red, but for lack of a better idea he willingly lent his co-operation.

For a long time the three men suggested various items, even to selling sugar at three cents a pound and, one by one, they were discarded as being unpractical.

Suddenly Tom leaped clear out of his chair, whacked his hand on the table and with enthusiasm shouted: "I've got it. We'll sell cigarettes for a dime a pack. Everybody smokes 'em, men, women, and children. Everybody knows they cost 15 cents. We'll be so doggoned busy we'll have to put on an extra man to handle the rush."

Tom sat down again to await objections to the idea.

There were none. He took it that silence meant agreement.

The oil company salesman mentioned the possibility that a special license would be needed to sell tobacco.

Phoning a wholesale house, they learned this was not the case, that the regular merchants' license covered the situation.

"Tom, I understand that part of your plan is to advertise your inducement. What media do you propose to use?" asked the advertising man. He recommended the use of circulars which would not cost much and could be distributed whenever and wherever it seemed of advantage.

One of the 'Tempters' that Tom Page Used to Pull Trade into his Station

TOM PAGE'S SPECIAL

August 7th through August 16th

Your Car Washed and Greased... 89c

Complete Lubrication Job

Grease or oil all friction points.
As many as 52 points lubricated with 13 different lubricants.
Battery Checked.
Tires Checked
Radiators checked and filled.
Headlights, lenses stop light, license plates, instrument board, steering gear column, gear shift and brake levers are carefully cleaned.
Car inspected for loose parts.
Tires checked for nails, etc.
Value..... 75c

Wash Job

Car thoroughly washed.
Windows cleaned and polished.
Interior vacuum cleaned.
Chromium cleaned and polished.
Value..... 75c
Complete Job As Listed Above, Only..... 89c

PAGE planned to spend about $25 in advertising his promotional plan. Unfortunately business had been very bad and that sum was not available from station funds.

Furthermore, he had originally planned to co-operate with several other dealers in putting the idea across. He talked to these men now, and outlined the plan. Each dealer was impressed and interested but, to a man, they hesitated to make a move as unconventional as the one suggested. One by one they presented reasons for delaying. Finally Page decided to put off the promotion for two weeks in order to give these other dealers a chance to mull over the proposition and to give himself time to scrape together a little cash.

Page had read in National Petroleum News of a dealer in Cairo, Ill., who offered his regular customers special bargains in car washing, polishing, and other services in which labor was the prime factor and actual cash outlay for materials was practically negligible. Page mentioned this idea to John Black, his helper.

"John, we can put on a stunt like that and clear enough money to put over our cigarette idea."

The Accepted Standards of Pennsylvania Bright Stock Excellence Since 1900

◆

H-M and L-M Oils Are Made Solely By

THE CONEWANGO REFINING CO.

Warren, Pa.

"Do tell," said Black. "If we could sell half the cars coming in here on a simonize job, which we can't, there wouldn't be enough business there to keep a canary in seed."

"We'll go off the drive for business," said Tom.

"Who is going to do all this washing and simonizing?" asked Black.

"You are."

"Hold everything, boss, I never washed a car in my life."

"You'll learn, Johnny, you'll learn. Here, take this changer. I've got to go out for a while."

From the telephone directory Tom made up a list of several printers and sign painters in his end of town. After two hours spent in talking to these men he returned to the station.

"All right, Johnny, here's the dope," he said. "Starting Saturday and continuing through to a week from Sunday, we offer a 'special' consisting of a combination grease and wash job for 89 cents."

John looked skeptical.

"How are you going to make money on a deal like that?"

"We've nothing to lose," replied Tom. "Every 89 cents we take in will be just that much extra income. Granted there's a lot of work for what we get, still I'd rather do that than to sit here and watch that danged steam shovel work. If we were busy, so that we would need extra help we couldn't afford this 'special' but with conditions as they are now we will stand a fighting chance of making a little extra money."

"Your going to advertise this super special?" asked Black.

"Two thousand circulars go out Friday afternoon. Two 28 x 44 signs go up Friday night."

"What will that cost?"

"Seven and a quarter for the circulars plus about two bucks for distributing them. I swapped a sign painter a grease job for the two signs."

Black was obviously not particularly enthused with Page's promotional plans.

"It looks to me," he said, "as though we'll have to do about 12 jobs to break even on the advertising cost. After greasing and washing 12 cars we'll be too tired to do any more. So how can we show a profit?"

Page laughed.

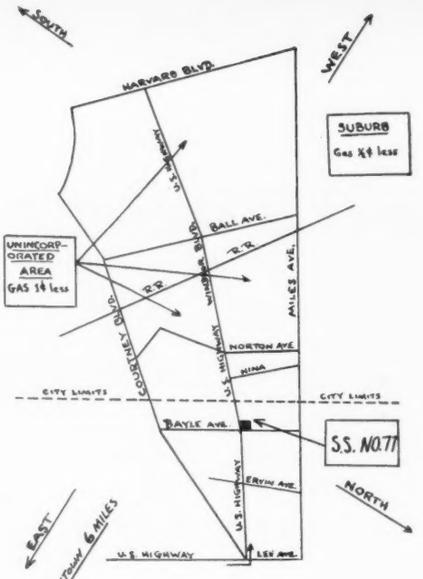
"Johnny, let's plan on doing 40 jobs. That's an average of about two apiece per day. We can make enough extra money to go ahead with our cigarette idea regardless of whether these other lugs want in or not."

Page's circulars were out on schedule. He hired two dependable boys in the neighborhood to distribute them and showed each just which streets he was to cover. Circulars were put on porches and in parked cars. The copy was simple.

Two canvas signs bore the same copy. One was placed on Bayle ave., to attract passing motorists. It was located so as to be easily visible from cars forced to make the boulevard stop. The other sign was posted on the front of the building so as to be visible from cars being serviced at the pump island. This done, Page went home and anxiously awaited results of his efforts. He planned to be on hand early the next morning and was shaving when the phone rang.

It was Johnny.

"Holy cats, Tom, I've got three 'specials' already. You'd better get down here."



Map made by Tom himself showing the location of his station in relation to neighboring streets and highways. Across the city line gasoline at one cent and one-half cent under the normal price. To make matters worse, Bayle Ave. was being repaved, thus putting a serious crimp in the normal flow of traffic on that street

By 9 o'clock seven more jobs had been procured. The two men worked feverishly.

In the majority of cases the owner would leave the car and plan to pick it up later. A few waited for the job to be finished. They were given the morning paper and the radio was turned on for their pleasure.

Page was inclined to hire extra help to handle the rush but feared that the purpose would be defeated and profit swallowed up. To his surprise he found customers unusually tolerant and patient. Later, he reasoned that the customers recognized the special as a really outstanding bargain and came prepared for a rush.

Accordingly, Page and Black worked alone. By the time a few jobs had been turned out they were working smoothly and rapidly, doing a complete job in about 30 minutes. They handled 13 jobs that first day. Two customers stopped in who were not able to leave their cars but wanted immediate service. These potential sales were lost.

The next day, Sunday, they were prepared for another rush. Only four jobs appeared. Two of these were sold on the driveway. During the following five days only three jobs were handled. As far as could be discovered they all resulted from the circular advertising. Four more jobs were turned out during the last two days of the "special", Saturday and Sunday. These had been "lined up" during the week and could not be included among those resulting from the advertising.

Not a single job resulted from the signs. Page figured that they contained too much copy and that casual drivers would not bother to read them.

Page estimated that of the 24 jobs handled during the "special", seven were lube

jobs which they would have gotten in any event. To Page, perhaps the most surprising result of his "special" was the ease in which other merchandise was sold to these customers. From his job tickets, Tom made up a table to show actual results of the promotional effort. It accompanies this article.

From the general attitude of these "special" customers, Page reasoned that they appreciated the bargain, were skeptical about Page's chances of making money on the idea and bought other merchandise mainly to help him along. At any rate many of his customers remarked that his price was too low. Several offered tips, which Page and Black politely refused.

Extreme care was taken in the handling of these special jobs, that full lubrication value be given. With an eye to getting the regular lubrication business of each of these new customers, Page and Black were painstaking in their work and, wherever possible, demonstrated the value of proper lubrication. In this manner they successfully established the real value of their "special" at $1.50.

AS A RESULT OF Tom Page's success with his promotional effort, two other dealers, using the same copy for their circulars, attempted to duplicate the feat. In each case they showed a profit which was quite acceptable to them but neither was able to reach the volume which Page had attained.

Talking it over with these two men, Page decided that he had gotten one big break in the fact there had been quite a heavy rain about four days before his circulars were distributed and that there had been more cars in need of a wash job than would ordinarily have been the case.

All this time gasoline business at Page's Service Station had been going rapidly from bad to worse. All cross-town streets east of Bayle ave. were closed completely at Windsor which meant that Bayle was the only street, north and south, for nearly two miles, which was open. All traffic in this area was forced to cross Windsor at Bayle.

It might seem that with this tremendous increase in traffic on Bayle, business would improve on Page's corner. Such was not the case. Deep ditches had been dug at the intersection, resulting in one-way traffic at that point. Traffic congestion became a real problem. For hours each day cars would be lined up for a quarter of a mile in each direction.

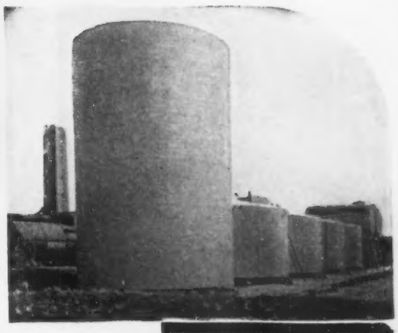
Thus Page's driveway approaches were blocked off. In order to buy "gas" it was necessary for a customer to first break through the heavy traffic, a mean feat in itself, then after being serviced, to get back in the line again. Many cars were forced to wait on Page's driveway a full five minutes before locating a break in the procession.

Minor accidents were frequent.

For hours each day several policemen were stationed on the corner in a futile effort to keep traffic on the move.

Several times each day the intersection would be closed while planks were placed on the pavement in order that a tractor, scoop, or some other road machine might cross. At these times it would take 30 or 40 minutes of frenzied horn blowing,

GENERAL STEEL PLATE CONSTRUCTION
GRAVER
TANKS
WATER CONDITIONING EQUIPMENT



Tried and proved methods and the latest findings of modern engineering skill make Graver Equipment preferred by oil producers, refiners, service station owners and all types of industry.

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ARE YOU ONE OF THE

1,000 OIL MEN

Who Get Lower Rates

From NATIONAL PETROLEUM MUTUAL
FIRE INSURANCE COMPANY

225 So. 15th St. Philadelphia, Pa.

MARTIN
DENNIS
NEATSFOOT
OIL

15° C.T.
17°/20° C.T.
30° C.T.

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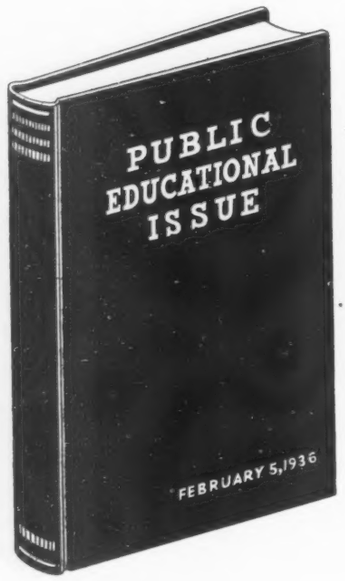
FOR YOUR PERSONAL EXAMINATION AND USE

Write us today for a sample bottle of 15° Cold Test Neatsfoot Oil. Examine and test to satisfy yourself that it is the finest Neatsfoot Oil made. Then use the remainder on your golf bag, shoes, luggage, etc. There is nothing better for conditioning leather.

OIL DIVISION

THE MARTIN DENNIS COMPANY
859 Summer Ave. Newark, N. J.



HOW big is the oil industry? How many people does it employ? What is the extent of the oil industry's payroll?

How much crude oil has been taken from the earth? How much oil is there left in the ground? What will we do for motor fuel if all the crude oil were exhausted?

You will find the answers to these questions and hundreds of others . . . in the February 5th Public Educational Issue of NATIONAL PETROLEUM NEWS.

A volume of 512 pages that tells the story of oil from the early days to the present . . . in a manner never before attempted in the history of the oil industry. Packed with facts, charts, graphs and pictures relating to the production, refining, marketing and retailing of oil . . . this Public Educational Issue is truly the greatest STORY OF OIL ever told!

Every man identified with the oil industry . . . whether owner, executive or employe—will want to own this remarkable compilation on oil.

Bound volumes in green permanent binding, with gold lettering may be had at $2.25 each postpaid. Send for your copy NOW.

CLIP

National Petroleum News
530 Penton Bldg., Cleveland, Ohio

Yes, send a bound volume of the Public Educational Number. Enclosed is $2.25 per copy delivered.

NAME.....

St.-Box.....

City-State.....

cursing and maneuvering before traffic was back to its normal point of congestion.

To Page it seemed a sin and a crime to have these thousands of cars burning up "gas" and oil and wearing out tires on his very doorstep and yet be powerless to get them into his station.

One day, a short time after the end of his lubrication "special", Page relieved Black at the end of a nine-hour shift.

Black's check sheet showed total sales for the shift of 28 gallons of gasoline and one quart of oil.

Page for a moment was speechless. It was not possible. He had a fleeting thought that the best course of action would be a two-months drunk until things blew over. Then his mind began to move.

"Johnny," he shouted, "you didn't know it but you're working overtime today. Gimme a nickel for a phone call."

HE PHONED the dealer who had seemed most interested in the cigarette idea.

"Joe, we've fooled around long enough. Are you going through with this thing or do I swing it alone?"

Joe hesitated.

Page could not keep the impatience out of his voice.

"Okay, Joe, I start tomorrow. If you make up your mind between now and four o'clock, phone the printer your order for circulars."

He called another dealer.

No sale.

A third said: "Dammit, Tom, you're cutting prices. You'll start trouble for sure."

Had anyone been listening in the next block they might have heard Tom's reply.

"Cutting prices your foot. Try and buy a gallon of 'gas' or any other petroleum product in this joint for less than the posted price. The trouble with you is you're scared."

He slammed up the receiver.

The next afternoon 2000 circulars were distributed in the neighborhood.

As before Page hired two boys to distribute his circulars. This time, however, they concentrated on parked cars rather than homes. In the nearby industrial district circulars were put in workers' cars parked on the streets and in parking lots. Two trips were made through the streets of the immediate neighborhood, where circulars were placed in cars and handed out to men. The first trip was at four in the afternoon and the second at eight the same evening.

In the afternoon two other boys were hired to hand 500 circulars to drivers on Bayle ave. They were stationed at boulevard stop signs, a few blocks north of Bayle and Windsor.

Page reasoned that, by the time a motorist finished reading the circular, he would be approaching the station and would stop in.

He was disappointed. Only two sales resulted from this effort. They totaled eight gallons of gas and a quart of oil.

Page put up two two-by-three foot canvas signs. Remembering the lack of results from his previous signs he was careful that the copy was simple.

Because he wanted to gauge the results of this advertising effort without other interference Page didn't mention his "special" lubrication and washing offer to driveway customers for three days.

During that period he received no results whatsoever from the circulars. As far as could be determined there were no sales which could be traced to circular advertising after the first eight gallons.

Page was sick. A profit of 28 cents on a $15 investment.

The signs pulled better.

As before, one was posted on the front of the building to attract customers already in the station and the other so as to be visible to drivers who were approaching the boulevard stop at the street intersection.

During the three-day experimental period the sign on the building resulted in the sale of 14 packages of cigarettes. These customers were, of course, already in the station and whether or not the 14 sales had any value depended on how many customers returned for more.

The sign on the street resulted in 11 sales. It was assumed that these were extra sales because in most cases the driver would apply the brakes quickly and swerve into the station. Fifty-eight gallons of gas were sold to these 11 cigaret buyers.

On the fourth day Page and Black began campaigning in earnest. Every customer was told of the plan. Cigarets went like hot cakes.

Selling cigarets at a dime, one cent under cost, was an easy job. A record kept the first two days of driveway soliciting showed that of 133 customers 43 bought 51 packages of cigarets.

Page's cost on the cigaret promotion boiled down to a figure slightly less than 2 per cent of the sales on which cigarets were used as an inducement.

This figure was right in line with trading stamps and other widely used trade inducements.

For about a week after the start of the promotion no outstanding results were apparent. Cigarets were sold right and left. Customers were eager to buy, but gasoline gallonage did not increase. Page was worried. This was a costly experiment.

He called on his advertising friend.

"Selling merchandise for less than cost is a pretty good racket," Tom told him. "The old sales curve looks like a sky rocket. There's only one trouble. The more you sell the more you lose. I'm afraid we made a bum bet. Gasoline sales haven't budged."

"When did you start your cigaret idea?" asked the advertising man.

"One week ago yesterday."

"I don't believe you've anything to worry about, Tom. You've got to allow for a lag between promotional pressure and results. Why, your company doesn't feel the results of a newspaper campaign for at least three months after the ads have run."

"I don't understand that," said Page, "at one time or another an ad has moved me to buy but I didn't wait three months to do it."

"Tom, you've a sound idea there and I know it's going to work out. By the way why don't you put up some signs?"

"Why, I have two canvas signs."

"Oh! I passed your station a day or so ago and was surprised when I didn't see some evidence of your inducement."

"Well, by golly," blurted Page, "I've

muffed it again. If my signs weren't big enough for you to notice when you were looking for them how can I expect a casual motorist to see them?"

By noon of the next day he had secured and hung up two 4 x 8 foot signs underneath the oil company sign in front of the station.

Checking up on his work Page found that the words "cigarets 10c" were plainly visible from a block in any direction and that the rest of the sign could easily be read as the car approached the corner at a moderate rate of speed. Being lighted by four 60 watt bulbs his signs were also plainly visible at night.

Results were immediate.

While Page and Black were hanging the signs one car stopped in and the driver asked if the offer was now on. Informed that it was he bought five gallons of gas and a package of cigarets.

During the second week of the promotion a few repeat customers put in an appearance with requests for gas and cigarets. The majority were new customers. This was explained by the fact that Page and Black had soft-pedaled the cigaret idea with their regular customers.

Furthermore the signs were pulling steadily. Not a day passed but what several strangers would stop in.

BY THE end of the third week Page knew that the battle was won. Gasoline sales were climbing steadily. There was no sharp increase but each day was a little better than the previous. More and more new faces were becoming familiar as their owners took advantage of Page's offer.

Word of mouth publicity began to have its effect.

People would say: "My neighbor tells me that you sell cigarets for ten cents. How many gallons must I buy?"

One woman bought an even 50 cents worth of gasoline and then floored John Black with the request: "Four cartons of Camels, please."

A steady procession of advertising salesmen streamed into the station. They would say: "A customer told me of your cigaret offer, etc., etc., etc. . . . " Each would present a plan designed to make Page a wealthy man within the year.

In their wake came premium salesmen with similar propositions.

Gasoline sales during the fourth week of the cigaret plan fell just short of being twice the sales of the week immediately preceding the innovation of the plan.

It was at about this point that Page and Black curbed active promotion of the plan. The signs were left on display but all driveway pressure was discontinued."

Along with the withdrawal of driveway pressure gasoline sales ceased climbing, and rather leveled off, maintaining an even keel until the highway was opened, three weeks later.

Page was then content to let the idea die out of its own accord. He kept cigarets on hand for those who asked for them but made no attempt at further promotion.

Some weeks later, during which time sales held up in fine shape, Tom Page closed the books on his cigaret promotional idea, well pleased with his success in maintaining service station sales in the face of several obstacles.

ESSO STATION

NOT CONNECTED
With
Standard Oil Company
(Indiana)

Now motorists in the Middle West can obtain at Esso Stations in St. Louis:

ESSO—for Premium Motor Fuel
ESSOLENE—for Regular Motor Fuel
ESSOLUBE—for Motor Oil
ESSOLEUM—for Greases and lubricants

THE SIGN OF HAPPY MOTORING

For the past several years, motorists in the East and in the South have been familiar with "the ESSO sign". This big red, white and blue ESSO oval has marked the source of fine products and courteous service at more than 30,000 ESSO STATIONS and ESSO DEALERS from Maine to Louisiana.

ESSO INC.

Please Note That the Standard Oil Company (Indiana) HAS NO CONNECTIONS WITH ESSO STATIONS or ESSO Inc.

Are YOU One ?

National Petroleum News,
500 Penton Bldg., Cleveland, Ohio

Yes—I'm one that is always promising myself "my own personal copy" of NATIONAL PETROLEUM NEWS each week. So here goes! Send me the next 52 issues for which I enclose $2, your new low rate per year. (Canada $3, Foreign $3.50).

NAME.....

Address.....

Div. of Industry.....

Company.....

The 1500-gallon airplane refueling unit recently placed in service by the Standard Oil Co. of Louisiana at Memphis, Tenn.

WATER-FREE GASOLINE

Insured In New Airplane Refueling Unit . . .

At many airports throughout the country the pace has quickened. Increased travel has stepped up the number of arrivals and departures of transport planes during the course of a day. There is a demand for faster servicing of the planes.

The science of refueling planes has developed greatly in recent months. Discharge speeds have been increased and, more important than that, progress has been made in delivering water-free gasoline from trucks to planes.

This problem of preventing contamination of gasoline by water is one that concerns every airport owner or operator, but more particularly the dispenser of fuel used in any airplane. Water will not burn and, when a slug of it enters the carburetor, the engine back-fires or misses. This has happened many times, often with disastrous results. Water contamination of fuel for aviation use may be of such serious import that it becomes a duty of the oil company supplying this type of trade to take every precaution.

The airplane refueling truck operated by the Standard Oil Co. of Louisiana at Memphis, Tenn. contains such precautions, being built to the specifications of American Air Line engineers.

The unit has a conventional type oval tank, with 1500-gallon capacity and 3 compartments. It has an extended partition mounting and three point support. It is fully skirted and has enclosed side cabinets. The rear cabinet, also enclosed, houses the reels, meters and all operating controls. The rear cabinet has a service platform on top, which is removable, along with the sides, for convenience in repairing the equipment.

Brackets for carrying ladders are located on the skirting on each side of the unit, and full length cat walks with mounting steps and hand rails are included in the equipment. A solid type bumper is provided which contains a spring loaded tow hook.

Fire fighting equipment consists of two, 15-pound CO_2 extinguishers mounted in pockets set in the skirting at the rear of the unit. In addition, there are two, 2-quart hand extinguishers, one located in the cab and the other on the door inside of the control cabinet at the rear. All extinguishers are easily accessible.

Considerable thought has been given to the prevention of fire, as well as to the control of it. The truck is fitted with fire screens, both at the air intake and exhaust, to eliminate dangers through sparks when back-firing. The internal emergency valve lines are fitted with fusible plugs which melt at 160 degrees F. and which relieve the hydraulic lines. These, in turn, automatically close all drain lines from the tank. For the relief of pressure within the tank, fusible plugs with fire screens, as well as the conventional vents, are located in the manholes.

Grounding of the unit is accomplished by the use of a self-winding reel containing 30 feet of metallic cable, with a jaw clip for attaching to the plane being serviced. Located beneath the rear control cabinet is a trailing ground chain. Static grounding of tank to plane is also accomplished by the use of grounding wire built into the service hose with grounded couplings.

The lighting equipment includes red obstacle lights on top of each corner of the unit. These are visible from the ground as well as from the air. Other lighting equipment includes a tail and stop light

at the rear, pilot lights on meter dials, and an illuminating light for the control cabinet. At the rear, mounted on top of this cabinet, is an adjustable cabinet with 30 feet of cable in a self-winding reel so that the light may be removed for remote service. The spot light switch is located in the cab.

Several precautions are taken on this unit to prevent water and other foreign matter which might enter the tank from being discharged through the pumping units. Sediment sumps in the bottom of each tank compartment, with welded draw-off lines to the curb side cabinet, where water or any sediment with a specific gravity greater than that of the fuel would seek the lowest level, permit easy detection of sediment, which is drawn off before the plane is refueled.

The compartment outlets through which the fuel enters the discharge manifold extend up within the shell so that the level of the internal valve opening is 3 inches above the bottom. With this precaution the compartment cannot be completely drained through the discharge lines, thus preventing any water being drawn off the bottom.

The fuel is first strained before it enters the pumps and again when it is pumped through the water segregators. Here, by centrifugal force, water is extracted and the fuel forced out through a fine mesh screen. The fuel is again strained when it passes through the air release and strainer just ahead of the meters.

When pumping is reversed, or the fuel picked up at the hose end and returned to the truck tank, it first passes through a line strainer at the end of the hose, and then through the same channels as the fuel being discharged, before it re-enters the tank.

Although the functions of the pumping system are numerous, it is comparatively simple to operate. It consists of two complete pumping units, for handling two different grades of aviation fuel. Either pump will discharge 75 gallons per minute. Through the use of hydraulic selective valves and manifolds, a selection of any compartment through either unit may be obtained, or both units may pump from the same compartment simultaneously.

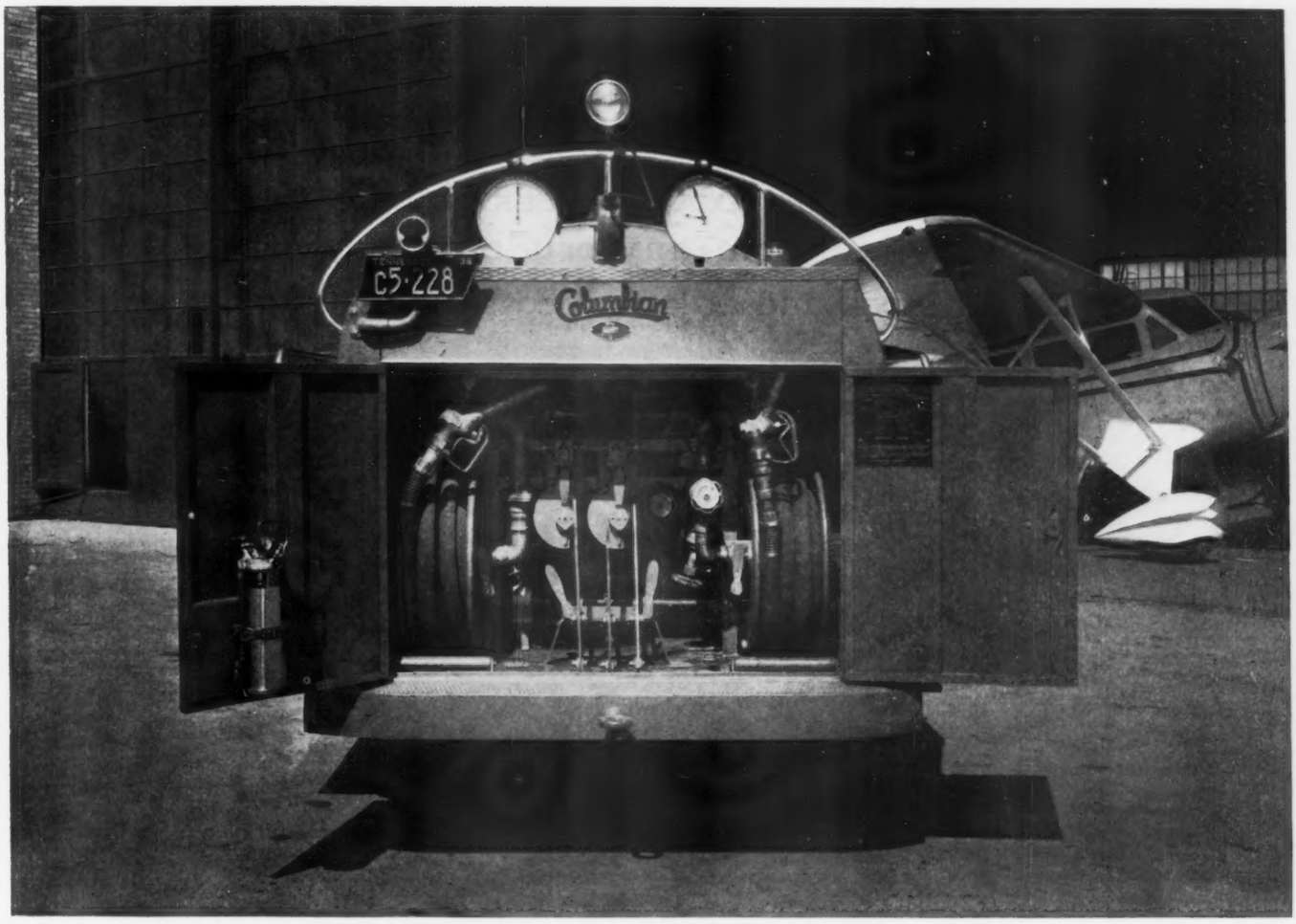
An important feature is the reversibility of the right hand pumping unit through the use of three gate valves. The fuel is picked up at the nozzle end of the hose and pumped to the proper tank compartment, at the same time being strained, segregated and metered. This reverse pumping feature is important in making final adjustments on weight schedules before flights, and also in filling tanks at bulk stations. Approximately 60 gallons per minute is obtained in the reverse pumping operation.

The pumps are mounted on hanger brackets between the truck frame, with a silent chain drive and line shaft connection to the power take-off. A tachometer to show the r.p.m. of the line shaft is mounted in the cab. Piping is connected to the pumps with flexible couplings, and pumps are controlled by individual friction clutches from the rear operating cabinet and can be used independently or simultaneously.

An outstanding feature from the operator's standpoint are the self-winding power driven hose reels, which receive power through a line shaft and silent chain from the pump drive. The reels are operated with a master friction clutch, with selective jaw clutches on each reel.

Lubricating oil is carried in an auxiliary 60-gallon tank located in the left side underslung cabinet, which is completely lined with fireproof insulation. For cold climates or weather, when it is necessary to pre-heat the oil, a series of immersion heaters are employed, controlled automatically by a mercury contact thermostat switch. It is set at a predetermined temperature; 110-volt current supply is obtained from an outside source when the unit is idle. Due to the insulation of the cabinet and the mountings of the hand-operated positive displacement pump, as well as the discharge hose within the cabinet, the complete dispensing equipment is kept at a moderate temperature.

The underslung cabinet on the right side is used for carrying cans, funnels, tools, and other miscellaneous equipment. The entire unit is mounted on a standard 1936 Ford V-8 truck chassis, with 157-inch wheelbase. Tank and fittings were built by the Columbian Steel Tank Co.



The rear control cabinet of the Standard Oil Co. of Louisiana's 1500-gallon airplane refueling unit at Memphis, Tenn.

If you are a refiner—

THE SELLER sets the price you pay for your crude oil and the buyer sets the price you get for your gasoline

There's just one stage of the game when *you* are the boss—while the crude is in your plant

From the time it is pumped in till the products are loaded out, you have the say There is your chance for profit Then it's up to you

Dubbscracking is the way to make the most out of your crude oil

Dubbscracking gives the biggest yield of the best gasoline from any crude or any other charging stock, and at lowest cost, royalty and all

It's up to you

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

INTERNATIONAL

Petroleum Technology

Current Technical Developments
Edited for All in the Oil Industry

Co-ordinate Oil Research

By ARCH L. FOSTER, Technical Editor

● America should have a super research organization to plan the long-range scientific policy of its petroleum industry, is the opinion expressed recently by at least one leading technologist from Europe and, independently, by one of America's foremost leaders in chemical research. Neither had interviewed the other, nor had either, so far as we know, been aware that the other was to suggest the idea in a public address.

The American scientist who proposed this forward step was Dr. H. S. Taylor, of Princeton University, well known among world chemists for his remarkable advances in chemical research, director of one of the research projects financed a few years ago by the fund contributed by Standard Oil Co. and Universal Oil Products Co. He was speaking before the assembled American Petroleum Institute members, the body which planned and directed that entire research program.

Few men are in as good a position to see the long-time needs of the industry in fundamental research. Doubtless, in the prosecution of his own work on petroleum, he has found himself stopped from proceeding in a given direction, or forced to halt by the lack of fundamental knowledge, and "build road" on which he could continue to discover new facts to the advantage of the whole industry.

Dr. Taylor knows thoroughly the major problems which the industry is facing in its effort to solve its technical problems, which are arising faster than its technological staffs can work out the solutions: fundamental problems of the laws which govern the retention of oil in sands, principles which must be utilized to recover a greater percentage of the oil so held; problems of the more efficient use of petroleum and its fractions, the greater portion of which is still used in its least efficient form—to build a fire. Fundamental data is needed of a thousand kinds. We do not know the chemical composition of more than the smallest fraction of crude oil, to say nothing of our lack of first-hand, fundamental information on the chemical reactions of these hydrocarbons. We have begun to attack these hydrocarbons, some of them with that remarkable but still little understood weapon, the catalyst. Yet even the best of our chemists understand only the rudiments of the laws governing catalysis, extraordinary as is the work of Ipatieff, of Sabatier, and other world known researchers.

From England comes the same idea of a co-ordinated research program, in this country, presented this time before a meeting of the American members of the very active Institution of Petroleum Technologists, of London. Dr. G. H. Coxon, of Anglo-Iranian Oil Co., enlarged on the peculiar fitness of the American industry to undertake the correlation of research and the furtherance of a systematic exploration of the huge fields open for fundamental research. The long-term planning, financing, and direction of funda-

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Fatty Acid Derivatives For E. P. Lube Making 59

Synthetic products derived from fatty acids appear to offer the lubricant technologist some new tools for attacking the problems of the new types of lubricants needed by industry.

Relationship Between Bleaching Power and Structure of Filter Clays 64

A study of the various types of clays and their properties of adsorption.

Comparative Costs of Vapor Phase and Other Treating Processes 69

Cost elements are analyzed in detail, the authors pointing out that exact costs, in each case, can only be determined for the individual plant.

mental research is too great a task for any single oil company, however large, Dr. Coxon pointed out. In the nature of the problem, the information regarding petroleum is of mutual and primary interest to every organization interested in manufacturing petroleum products. The use of this knowledge is correspondingly a necessity for all concerned.

European oil industries find it too difficult to attempt such a correlation of effort on a common problem, Dr. Coxon says. Political boundaries are too strong, too great a handicap. Racial prejudices prevent the co-operation and the sharing of expense, effort and results. Commercial restrictions, the aggravating hodge-podge of limitation of action, of freedom of communication, of international movement and interchange of ideas plague the industry and prevent its proper development there.

Nor has the European industry reached the stage of technical development which America now enjoys, Coxon reminded his audience. European, especially British, technologists periodically and frequently tour the American oil industry to keep abreast of developments in research and technology in every branch of the industry. Therefore the most advantageous center for instituting an industry-wide system for promoting and correlating fundamental research is in America.

The colleges and universities cannot support such a plan, although their staffs are highly competent to direct it and to do the work of research in its multitude of phases. No practicable plan has been proposed to organize and carry on such a correlated program. Nevertheless, the need for it is apparent to a great number of informed men in the business as well as to the technical divisions of the industry. It must be financed by the industry and directed and carried out by the most capable technical and administrative minds in the industry.

Photo courtesy Humble Refinery Bee

Storage of gases under pressure in large quantities is another of the large-scale problems which has been solved in good measure in the last decade. A C. B. & I. Hortonsphere in the making

BY A. W. RALSTON,
C. W. CHRISTENSEN,
E. J. HOFFMAN,
W. W. SELBY AND
V. CONQUEST

FATTY ACID

Nitriles, Amides, Ketones For E. P. Lube Making

THE use of derivatives of fatty acids for the improvement of lubricating oils and greases is a field of research which offers unusual promise. Whereas an art of long standing has been built around the use of the fatty acids themselves, soaps and also the fats both pure and chemically treated, little is as yet known concerning the effect of the numerous compounds which it is possible to synthesize using the fatty acid molecule as the starting point. The object of this paper is to discuss some fatty acid derivatives which we have recently synthesized and the lubricating properties of such compounds either by themselves or when mixed with hydrocarbon oils or greases. The paper presents the method of synthesis and study of the lubricating properties of such derivatives as nitriles, ketones, amides and thioamides, and these derivatives will be discussed in the above mentioned order.

In a study of such a nature various generalizations can be drawn which forecast the interest any particular type of derivative might hold for this purpose. The compounds should be stable at relatively high temperatures, should not be easily oxidized and should be non-corrosive, both in themselves and when added to any lubricant. In addition they should be reasonably cheap and available.

NITRILES

Nitriles are extremely stable at reasonably high temperatures and can be cheaply and easily prepared from fatty acids. When one reacts a fatty acid with ammonia under dehydrating conditions an ammonium soap is first formed which then dehydrates to the amide and later to the nitrile according to the following reactions:

$$RCOOH + NH_3 \ldots\ldots\ldots\ldots RCOONH_4$$
$$RCOONH_4 \ldots\ldots\ldots\ldots\ldots\ldots RCONH_2 + H_2O$$
$$RCONH_2 \ldots\ldots\ldots\ldots\ldots\ldots RCN + H_2O$$

During the course of our study of this synthesis we have been able to accomplish this reaction in one step and without the use of dehydrating agents or catalysts, which process can prepare nitriles from fatty acids at an extremely nominal cost. This has been accomplished by the continual removal of the water generated which prevents equilibrium conditions being established and allows the reaction to go to completion as is shown by the equations. These nitriles are either low melting solids or liquids, depending upon the number of carbon atoms in the R group. Thus, for example, stearonitrile, which is the nitrile corresponding to stearic acid, has a melting point of 41°C. (196F.) and lauronitrile, corresponding to lauric acid, has a melting point of 4°C. (39F.). These nitriles are very soluble in all types of mineral lubricants, are stable at relatively high temperatures 450°C., (842F.), and are non-corrosive to metallic

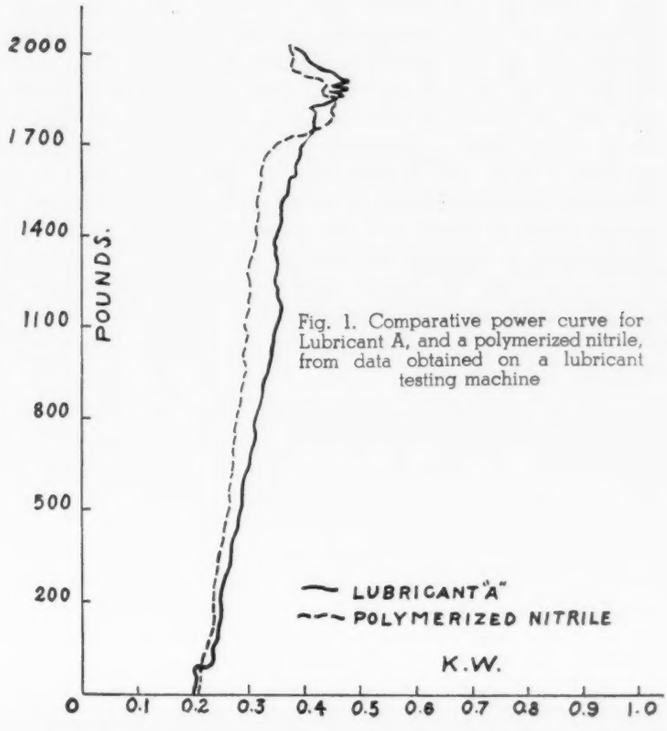


Fig. 1. Comparative power curve for Lubricant A, and a polymerized nitrile, from data obtained on a lubricant testing machine

*Presented by A. W. Ralston under the title "Effect of Some Fatty Acid Derivatives on Lubricants," before the Fourth Annual Convention of the National Association of Lubricating Grease Manufacturers, Inc., Oct. 13, 1936, Chicago, Ill.

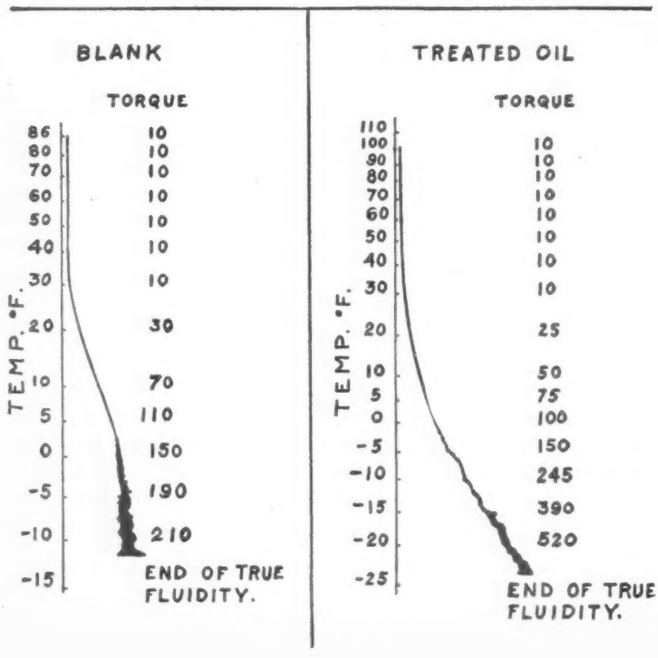
†Armour & Co., Chicago, Ill.

surfaces both at high and low temperatures. They possess the property of oiliness common to polar groups of this nature. By virtue of their ability to impart oiliness to an oil or grease, nitriles show promise as substitutes for fatty acids or fats where increased oiliness is desired.

When high molecular weight nitriles, such as stearonitrile, are heated under pressure to temperatures around 550°C. (1022), they can be cracked preferentially in the carbon chain to yield a mixture of lower chain nitriles containing from five to twelve carbon atoms together with straight chain hydrocarbons. It is of interest to note that nitriles differ from other known derivatives of fatty acid in this respect since all other derivatives of fatty acids and also the fatty acids themselves yield only heterogeneous mixtures when subjected to cracking conditions, whereas, nitriles give clear distillates which contain the polar group intact. This cracked nitrile-hydrocarbon mixture possesses very pronounced penetrating ability as evidenced by the fact that it will creep up rusty metallic surfaces, loosen rusty bolts and remove carbon deposits from metals. When the cracked mixture is added to a mineral lubricant it imparts this property to the lubricant. The penetrating effect of the cracked mixture is much in excess of that of the higher molecular weight nitriles themselves, however, the property of penetrability can be said to be common to all the aliphatic nitriles with which we have worked.

When nitriles are heated for prolonged periods of time in the presence of various inorganic compounds which promote polymerization, such as aluminum trichloride, sulfides of phosphorus, phosphorus trichloride or sodium sulfide, etc., they are polymerized into substances having the appearances and viscosities of heavy mineral oils. These products appear to possess the property of lubricating under extremely high pressures either by themselves or when mixed with hydrocarbon lubricants. We believe that any lubricant for this purpose should be non-corrosive, possess low internal friction, be stable under the conditions of its use, and possess reasonably high load carrying capacity. These properties should be retained even after long periods of use. In testing these polymerized nitriles we used a Faville-LeVally machine to which we attached a recording wattmeter so that the power measurements could be obtained. This machine applies a load upon a metal pin rotating between two metallic blocks. The load is applied by means of jaws and is recorded upon a gauge graduated between 0 and 4500 pounds. Since the surface of contact of the blocks and pin is much less than a square inch the load in terms of pounds per square inch is greatly in excess of the gauge reading. Temperature, torque and power readings were recorded at definite time intervals. Wear upon the pin was also recorded by counting the number of teeth necessary to take up in order to bring the load to its original value. These wear observations were made every minute. In applying the load two methods were used: First, an intermittent method wherein the jaw load was increased one hundred pounds every five minutes, at the end of which time the temperature, torque and power were recorded; and, second, a continuous loading method whereby the load was continuously applied. During the intermittent loading tests wear was observed by counting the number of teeth necessary to bring the load gauge to the original reading. This was recorded every minute after the first minute.

Fig. 2. Curves showing the effect of pour point depression on a Pennsylvania oil and the effect of an addition of one-half per cent of a ketone synthesized from red wax



A large number of these polymerized nitriles have been prepared. For example, nitriles have been polymerized in the presence of phosphorus, phosphorus and sulfur, sulfur, phosphorus sesquisulfide, phosphorus pentasulfide, chlorine followed by sodium sulfide, phosphorus trichloride and many others. The nitriles used include stearonitrile, nitriles obtained from lard acids, cottonseed oil acids, fish oil acids, soya bean acids and tallow acids. The method of preparation is to heat the nitrile or mixtures of nitriles with the polymerizing agent for varying periods of time at a temperature of approximately 200°C. (392F.).

Table 1 shows the results obtained with a lard acid nitrile polymerized in the presence of phosphorus pentasulfide as above described. The table compares the torque, temperature rise, power and wear of this sample with that obtained using some standard extreme pressure lubricants now commercially available. The load was intermittently applied, as previously described, at the rate of one hundred pounds every five minutes.

It has been our experience that intermittent application of the load at definite time intervals shows a number of factors, such as developed heat and wear, which are not apparent when the load is continuously applied. The most important factor in connection with wear is the rapidity with which a new surface is formed after the application of the load. Thus a lubricant may show high wear during the first minute but if this falls to zero wear before the next load increase it would be more indicative of satisfactory service than a lower total but continued wear. The reason for this is apparent since in service long time intervals are encountered. Under the conditions of this test most of the lubricants failed somewhat above 2000 pounds jaw load. The power curve for Lubricant A and the polymerized nitrile is shown in Fig. 1.

In addition to testing these lubricants by an intermittent method they were also tested by a continuous application of the load. In this test all of the lubricants carried the full capacity of the machine with the exception of Lubricant B. The results obtained are shown in Table 2.

These results are presented for the purpose of showing that nitriles treated in this manner possess extreme pressure properties. The data are not given for the purpose of showing that nitriles so treated are finished lubricants, but to show the possibilities which they present. It is our feeling that low temperature rise during use is a very important factor and it will be noted that this sample showed

a very low temperature rise under the conditions of this test. Differences are also apparent in the lowered torque and lowered power necessary to rotate the pin. These tests combined with our observations that nitriles are heat stable and non-corrosive indicate that they may be a factor in the solution of some of the lubricating problems of the future. Continued work is being done upon these compounds and the above should be taken as merely preliminary.

KETONES

Among the interesting derivatives of fatty acids may be mentioned the ketones. Ketones are characterized by the type formula R-C-R′. Our work has shown that where both

O

R groups of the ketone are aliphatic such as in stearone, or where both are aromatic, such as benzophenone, the ketones are not soluble in mineral oils to any appreciable extent. When one of the R groups is aliphatic and the other aromatic high molecular weight ketones are very soluble in mineral oils and greases and impart some interesting properties thereto. These mixed ketones can be prepared conveniently and cheaply from acid chlorides of fatty acids and the corresponding aromatic compound; for example, xylylheptadecyl ketone is prepared by a Friedel-Crafts reaction between xylene and stearyl chloride.

A large series of these ketones has been made, which includes ketones synthesized from acid chlorides and such aromatic compounds as diphenyl, diphenyl ether, furan, xylene, dibenzofuran, thiophene, dibenzothiophene, carbazole, anthracene and various high boiling coal tar distillates. The products are either wax-like solids or high boiling liquids and are all characterized by their stability at high temperatures, resistance to oxidation, high flash and fire points and low viscosities in the molten state. These ketones when added to a lubricating grease or oil impart oiliness as evidenced by lowered power and torque conditions. Oiliness is usually assumed to be a manifestation of polarity. When both R groups of a ketone are similar the compound is symmetrical and the carbonyl is not highly polar. Where one of the R groups of a ketone is aliphatic and the other aromatic the compound is unsymmetrical and will possess high polarity. The increase in oiliness when these ketones are added to lubricating oils and greases has been measured by various means among which may be mentioned increased temperatures of transition using the Stephens Consistometer. In some cases the presence of 0.5 per cent of these ketones has increased the temperature of transition as much as 40°F. This temperature of transition will then remain unchanged when the plates are rerun in the check oil.

In addition to the property of oiliness a number of these ketones possess specific properties which are deserving of comment. Those ketones prepared from high boiling coal tar distillates and stearyl chloride lower the pour point of lubricating oils and when added to a lubricating oil or grease improve materially the cold fluidity and shear tests. Table 3 shows the pour point lowering obtained with a Mid-Continent oil when 0.5 per cent of the various ketones are added.

In general it may be stated that the higher boiling the coal tar distillate used as a starting material in the synthesis the greater the effect upon the pour point. The effect of a 0.5 per cent addition of a ketone synthesized from red wax upon a Pennsylvania, a Mid-Continent and a Penn sylvania blend oil is shown in Figures 2, 3 and 4.

Figure 5 shows the effect upon the shear test of a

Fig. 3. Curves showing the effect of pour point depression on a Mid-Continent oil and the effect of an addition of one-half per cent of a ketone synthesized from red wax

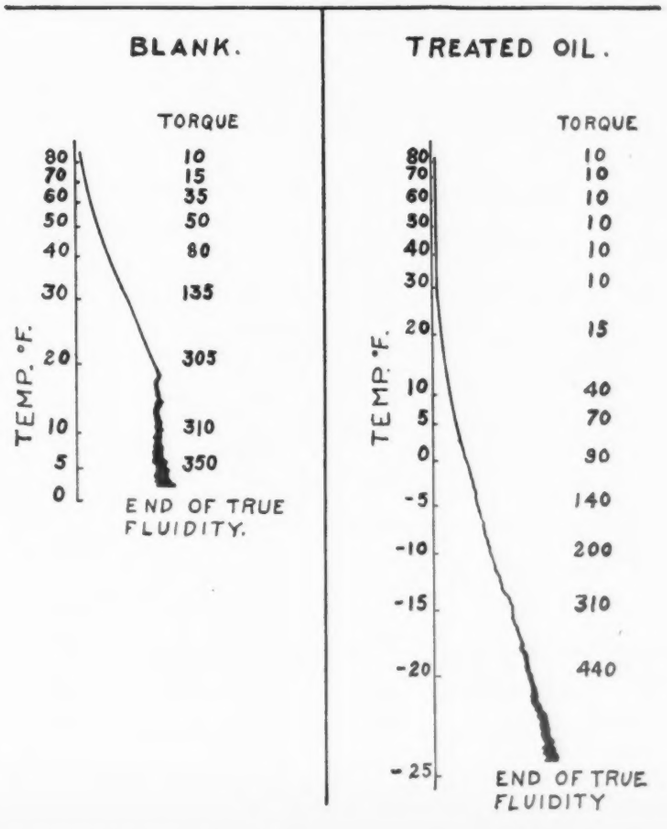


TABLE 1
Comparison of Extreme Pressure Lubricants
Intermittent Loading

	Time Min.	Load Lbs.	Torque In. Lbs.	Temp. Rise °F.	Power kw.	Wear Total
Lubricant A	30	500	9.5	45	0.08	16
	55	1000	14.0	93	0.13	32
	80	1500	19.0	137	0.18	79
	105	2000	23.0	148	0.19	113
Lubricant B	30	500	9.0	44	0.065	6
	55	1000	14.5	91	0.105	27
	80	1500	22.5	126	0.145	139
	105	2000	35.0	164	0.34	796
Lubricant C	30	500	11.0	48	0.08	7
	55	1000	19.5	97	0.12	14
	80	1500	25.0	148	0.17	29
	105	2000	29.0	178	0.20	90
Lubricant D	30	500	9.0	40	0.07	24
	55	1000	12.5	73	0.12	63
	80	1500	11.5	112	0.14	92
	105	2000	13.0	148	0.18	96
Polymerized Nitrile	30	500	4.5	34	0.055	7
	55	1000	8.5	66	0.07	15
	80	1500	11.0	91	0.10	28
	105	2000	12.5	135	0.15	57
75% Pennsylvania	30	500	7.5	39	0.06	9
Bright Stock	55	1000	10.5	78	0.10	15
25%Polymerized.	80	1500	14.0	124	0.15	38
Nitrile	105	2000	22.5	146	0.20	80

TABLE 2
Comparison of Extreme Pressure Lubricants
Continuous Loading

	Load Lbs.	Power ks.	Temp. Rise °F.	Torque In. Lbs.
Lubricant A	4500	0.73	158	45.0
Lubricant B	4000	1.0	158	57.0
Lubricant C	4500	0.83	112	55.0
Lubricant D	4500	0.51	95	32.5
Polymerized Nitrile	4500	0.57	87	21.0
25% Nitrile Plus ..... Pennsylvania Bright Stock	4500	0.60	98	26.5

Lubricant D was a sulfided lard oil which is used as a compounding ingredient for high pressure lubricants.

TABLE 3

Effect of Ketones on Pour Point

Coal Tar Fraction Starting Material	Pour Point Lowering °F.
Tower Bottoms—B.P.R. 315-330°C.	15
Crude Red Wax	35
Crude Anthracene	20
Coal Tar Distillate—B.P.R. 300-375°C.	5
Coal Tar Distillate—B.P.R. 400-500°C.	30
Coal Tar Distillate—B.P.R. 475-500°C.	65

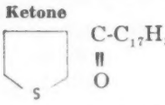
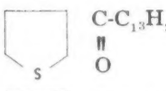
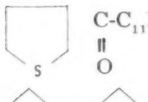
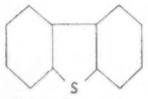
naphthenic oil brought about by the addition of 0.5 per cent of the above mentioned ketone. This observation is of interest since very few materials have been found which will affect the viscosity characteristics of this type of oil.

Ketones containing phenoxyphenyl as the aromatic group have the peculiar property of gelling mineral oils to which they are added. For example, when a 20 per cent solution of phenoxyphenyl heptadecyl ketone in a S.A.E. 20 lubricating oil was prepared and cooled to room temperature a homogeneous mixture of grease-like consistency was obtained. This has the peculiar property of turning to an oil under slight pressure and reverting to a grease when this pressure is released. It is of interest to note in this connection that gels can be prepared from such substances as kerosine, gasoline, and so forth, by the incorporation of this compound.

Ketones prepared from thiophene, such as thienyl heptadecyl ketone, when dissolved in an oil or grease impart high load carrying characteristics. Several interesting observations were made upon this type of compound relative to the effect of chain length upon the load carrying ability. Six per cent solutions of these compounds in Pennsylvania Bright Stock were prepared and tested for load carrying capacities by process of intermittent loading where the load was increased one hundred pounds every two minutes. The results are shown in Table 4.

TABLE 4

Load Carrying Capacity of Thiophene Derivatives

Ketone	Load Carried
 C-$C_{17}H_{35}$	3900
 C-$C_{13}H_{27}$	1500
 C-$C_{11}H_{23}$	1900
 C-$C_{17}H_{35}$	1100
Blank	1100

From Table 4 it can be seen that the load carrying capacity is influenced by the chain length and also that the sulfur in the thienyl radical is available under the conditions of our test whereas that contained in the dibenzothiophene is without effect.

AMIDES AND THIOAMIDES

The amides of fatty acids may be mentioned as another easily prepared derivative. They can be synthesized by dehydrating ammonium salts of the fatty acids or by hydrolysis of nitriles. Our experience has been, however, that the amides are soluble with great difficulty in hydrocarbon greases thus greatly limiting their interest. When nitriles are reacted with sulfur and ammonium sulfide thioamides are obtained. These thioamides are rather high melting point solids which are soluble in some cases up to 10 per cent in hydrocarbon oils. The reaction for their formation may be represented as follows, although its mechanism is somewhat in doubt:

$$RCN + (NH_4)_2S \longrightarrow \underset{\underset{S}{\|}}{RCNH_2} + 2NH_3$$

When dissolved in a hydrocarbon oil or grease they impart very decided load carrying capacities.

A number of other derivatives of fatty acids have been synthesized and are now under study among which may be mentioned stearolated thiourea. It is believed that a sufficient number of examples have been given to indicate that fatty acid derivatives are of interest in lubrication and it is hoped that future study will show them to have a place in the lubricants of the future.

Fig. 4. Curves showing the effect of pour point depression on a Pennsylvania blend oil and the effect of an addition of one-half per cent of a ketone synthesized from red wax

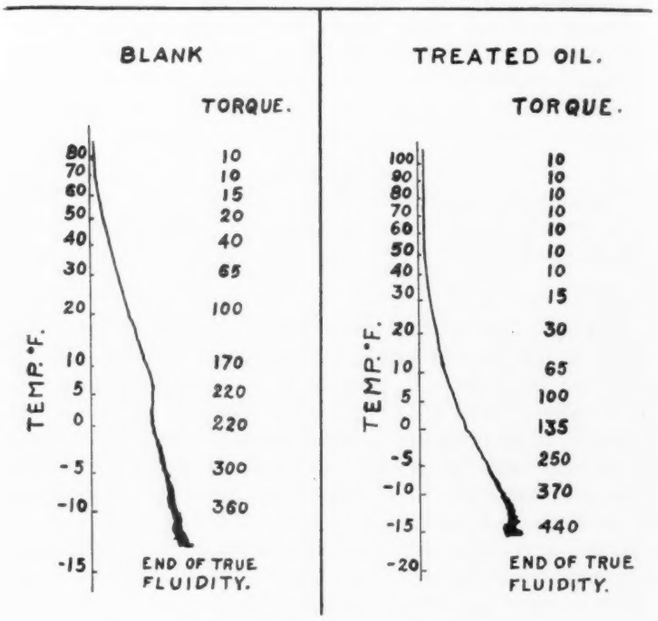
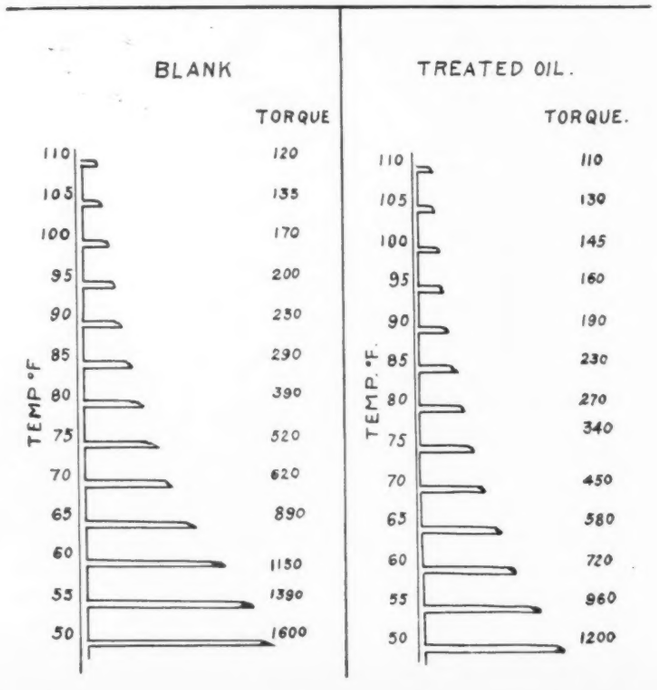


Fig. 5. Curve showing the effect on the shear test of a naphthenic oil produced by addition of one-half per cent of the red wax synthetic ketone



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RELATIONSHIP

Between Bleaching Po

Structure of Filt

By RAPHAEL FUSSTEIG

BLEACHING clay, one of the most valuable bleaching agents used in oil refining, is no modern invention. It was known long before our era; on certain Egyptian tablets may be seen slaves cleaning olive oil by means of earth, and the ancient Chinese knew certain silicates useful for decolorizing vegetable and animal oils.

However, this process fell into oblivion during the Middle Ages; but the great development of the oil industry caused technologists to investigate the same materials. John Fordred, an English chemist, was the first to decolorize oils and paraffin waxes by means of a natural bleaching clay, in 1868. This work may be considered to have begun the development of the modern bleaching clay industry.

But not all silicates are able to decolorize oils and waxes, their decolorizing power depends to a high degree upon their internal structure. Before going into this phase of the subject, it is desirable to discuss briefly the origin and composition of bleaching clays. Silicon dioxide, or silica, SiO_2, is the most simple combination in the silicates. This combination formed, under certain conditions during the consolidation of the earth's crust, various chemical compounds with the hydroxides of aluminum, magnesium, calcium, potassium, sodium, etc. For example, the chemical combination of three molecules of silica with two molecules of potassium hydroxide and two molecules of aluminum hydroxide formed feldspar:

$$SiO_2 + KOH + Al(OH_3 \rightarrow KAlSi_3O_8 \text{ (feldspar)} + H_2O$$

This higher molecular silicate was exposed, over a period of many thousands of years, to air and water, to undergo a permanent degradation. Weathering in this manner caused oxygen, carbon dioxide and water vapor to attack chemically the interior structure of the silicate, transforming it into two new combinations.

$$KAlSi_3O_8 + H_2O \rightarrow H_3KSiO_6 + Al_2H_4Si_2O_9 \text{ (kaolin)}.$$

During thousands of years this water-soluble potassium silicate was extracted by percolating water, and since a great deal of this compound was split off from the feldspar, or leached from it, the resulting kaolin showed a loose and porous structure. In this manner feldspar or orthoclase was transformed into so-called bleaching clay. The weathering process operated under such conditions that the water-insoluble kaolin material formed a matrix or structure of microscopic or ultramicroscopic channels, which were filled with the water-soluble potassium silicate. Through geologic ages the water-soluble compound was extracted to a large extent by water and carbonic acid, leaving a structure of microscopic channels with a large adsorptive surface.

These silicates are able to decolorize oils and paraffin waxes, the most important of them being called zeolites. They are generally hydrated alumino-silicates of calcium or sodium, and their empirical formula shows a feldspar silicate group combined with water which is intimately bound partly or entirely with the silicate. The zeolites are acid salts in which part of the hydrogen is replaced by the group $CaAl_2O_2$, or by NaAlO. The zeolite formula can be expressed in this manner, its first part as a normal salt, the second part as a silicic acid where frequently water of crystallization is present;

$$Na_2O \cdot Al_2O_3 \cdot 4SiO_2 \cdot 2H_2O, = Na_2Al_2Si_2O_8 \cdot 2H_2SiO_3. \text{ (Analcime).}$$

$$CaO \cdot Al_2O_3 \cdot 4SiO_2 \cdot 4H_2O, = CaAl_2Si_2O_8 \cdot 2H_2SiO_3 + 2H_2O. \text{ (Laumontite).}$$

$$NaO \cdot Al_2O_3 \cdot 3SiO_2 \cdot 2H_2O. = Na_2Al_2 \cdot Si_2O_8 \cdot H_4SiO_4. \text{ (Natrolith).}$$

$$CaO \cdot Al_2O_3 \cdot 3SiO_2 \cdot 3H_2O = CaAl_2Si_2O_8 \cdot H_4Si\ O_4 + H_2O. \text{ (Scolezite).}$$

$$CaO \cdot Al_2O_3 \cdot 6SiO_2 \cdot 5H_2O = CaAl_2 \cdot Si_4O_{12} \cdot 2H_2SiO_3 + 3H_2O. \text{ (Stilbite).}$$

$$CaO \cdot Al_2O_3 \cdot 6SiO_2 \cdot 6H_2O = CaAl_2Si_4O_{12} \cdot 2H_2SiO_3 + 4H_2O.$$

Zeolites seldom appear in the free state, but are frequently found mixed with other argillaceous earths. The greater proportion of zeolite in the argillaceous earth, the more suitable are they as bleaching clays. These natural bleaching clays are known as Fuller's earths. They often show an acid reaction, and are able to adsorb basic coloring matter such as fuchsine, malachite green, methylene blue, etc., from water and oil solutions. However, not all basic coloring matter can be adsorbed by fuller's earths; for example, magenta red and eosin can be mentioned.

The above shows that this reaction cannot be considered a neutralization process between acid and base. Parsons (1) has studied this process and established it as a physical process between the coloring matter and the microscopic structure of the earth. According to his opinion, the decolorizing power of a bleaching clay depends on its colloidal silicate content. Wesson (2) maintains that the activity of fuller's earth is caused by an oxidation reaction, Benedikt (3) controlled the reactions of Wesson experimentally, and observed that during the bleaching process two reactions occur simultaneously; one on the side of the chemical oxidation process, and the other the physical adsorption process. Rideal and Thomas (4) found the activity of fuller's earth to lie in the action of certain oxidation catalysts.

In order to determine the correctness of this theory the writer has investigated a fuller's earth found near Igualada. Spain. This earth, containing 8.5% of iron oxide, could partly decolorize oils and waxes. Removal of a certain quantity of the iron oxide from the earth destroys its adsorptive action

Power and Filter Clays

entirely, but when submitted to an artificial activation treatment the iron oxide was not attacked, and the earth showed a double decolorizing power. Viewing the bleaching process in the light of the above, we are forced to the conclusion that the artificial activation treatment increased the adsorptive surface of the earth, while the iron oxide acted as a catalyst in the oxidation of certain coloring matter by atmospheric oxygen.

To prove the correctness of these observations, we have carried out treatments of the same oil with the Spanish earth and with an earth containing no iron oxide, later extracting the coloring matter from these earths using the same solvent. Analyses of these coloring materials showed higher molecular weight hydrocarbons. These two groups of hydrocarbons, however, differ in their chemical compositions, that from the Spanish earth showing percentages of oxygen. In the writer's opinion the iron oxide, Fe_3O_4, is split, in the field of activity of the adsorptive surface, into ferrous oxide, FeO, and active oxygen, the oxygen combining the coloring matter which in this oxidized form is adsorbable by the earth.

Hoffman, Endell, and Wilm (5) examined fuller's earths by means of Roentgen-ray photographs and found in the internal structure of the crystals montmorillonite, $H_2O.4SiO_2.Al_2O_3 + nH_2O$. From their experiments they decided that the more montmorillonite an earth contains the greater its decolorizing power. The author has studied this problem, and has observed that the montmorillonite content is insufficient to properly classify earths. As outlined above, the weathering of feldspar led to its being split into two combinations, the water-insoluble part forming a matrix or channeled structure, these channels being filled by the water-soluble part. We have found that the microscopic structure shows the crystalline form of montmorillonite. But if this montmorillonite structure is filled with a water-soluble silicate, the microscopic channels are not capable of decolorizing oils and paraffin waxes. If the soluble silicate is leached out during the weathering process, the insoluble matrix becomes a porous, active fuller's earth. Of course, the greater the quantity of soluble silicate removed, the greater the decolorizing power of the finished earth. The adsorption capacity is proportional to the "specific surface," the ratio of the total surface of an adsorbent to its volume.

Obviously, from the above, the weathering process produced many types of fuller's earths, their activity being dependent on the porosity, the number of these emptied channels. Many natural earths with the montmorillonite structure are found, but the channels being filled with acid-soluble silicates, the earths must be treated by artificially leaching out these inhibitors. This is done by several processes, but before discussing those processes we will consider the theory of decolorization.

Adsorption may be considered as the change of concentration of a solution on the adsorbent's surface, between the liquid and solid phases. By adsorption in solution—the only type here considered—is understod to mean the increase in concentration of a dissolved substance in the liquid layer bounding the solid surface, the so-called boundary layer. The increased concentration of the dissolved substance in the boundary layer may be brought about by the formation of a loose chemical complex, or by physical forces. In either case the attraction between positive and negative charges plays an important part.

The adsorption of non-electrolytes is in general similar to the adsorption of electrolytes, although that of the former is closely related to the lowering of surface tension, while the latter is attended by electrical phenomena of considerable importance. The term non-polar adsorption is usually applied to non-electrolytes, while to electrolytes "polar" adsorption is applied. Notwithstanding the differences between these two types of adsorption both processes appear to follow the exponential law expressed mathematically in the equation of the adsorption isotherm.

Adsorption is generally positive, that is, there is an increase of the dissolved substance in the boundary layer. The degree of positive adsorption may be sufficient to remove nearly all of the solute from the solution especially if the solution is dilute. In case of negative adsorption-decrease of solute in boundary layer—the amount is usually very small. Adsorption in solution is also largely dependent on the surface tension of the solvent, the greatest adsorption for the same solute occurring in the solution whose solvent has the highest surface tension. A substance that is easily adsorbed is usually a poor adsorption medium. This indicates the reason for the readiness with which an adsorbed substance can often be removed from the adsorbent by washing it with a liquid which is easily adsorbed. Adsorption is strong for aliphatic hydrocarbons but stronger for aromatic compounds. The greatest the complexity of the molecular structure the greater the adsorption.

THE adsorption of the non-electrolyte appears to be controlled largely by the specific surface of the adsorbent and by the influence of the substance to be adsorbed on the boundary tension; $\frac{d\triangle}{dC}$. Since $\frac{d\triangle}{dC}$ varies for different substances it is evident that a large surface does not in itself assure a large amount of adsorption. Neither $\triangle$ nor $\frac{d\triangle}{dC}$ are susceptible of direct measurement for the liquid-solid boundary. In some cases it is compared with its corresponding liquid-gas equilibrium. This comparison is hardly permissible, although substances showing great surface activity under one set of conditions are frequently easily adsorbed under another set of conditions. The facts so far noted find a quantitative expression in the empirical equation of Freundlich known as the adsorption isotherm; $\frac{x}{m} = k.\ c^{\frac{1}{n}}$, where x = total amount adsorbed; m = amount of adsorbent used; c = equilibrium concentration, and k and n = constants.

The quantity, $\frac{1}{n}$ is of little specific character as is indicated by the fact that the logarithmic curves for a number of

different solutes removed by the same adsorbent are roughly parallel straight lines and therefore have the same slope. Studies on the adsorption of acetic acid by charcoal at various temperatures show that the "k" of the adsorption isotherm decreases with rising temperature, while 1/n increases slightly. Equilibrium is attained rapidly in most adsorptions. In cases where equilibrium is reached slowly, it appears that the adsorption reaction is not a simple one. In a number of such cases it has been disclosed by our investigations that the adsorption is followed by a chemical reaction. Gurwitsch also studied the adsorption process, and established as follows; if the adsorbent touches the surface of a solution, it attracts not only the solute molecules but also those of the solvent. Because of this attraction the adsorbent grains will be surrounded by the condensed molecules, the thickness of this cover by the extent of the sphere of action of the adsorbent. As mentioned above these condensed molecules contain a certain quantity of solvent, the ratio of solute to solvent depending on the amount of the dissolved substance in the solution—its concentration—and upon the adsorptive power, the value of which is different for each dissolved substance. In other words, when an adsorbent acts upon solutions of equal concentration of different substances, that substance will be more strongly adsorbed which has the stronger attractive power for the adsorbent.

ON THE contrary, comparing equally concentrated solutions of a substance in different solvents, the substance will be adsorbed best from the solution whose solvent has the least attraction for the adsorbent. According to the author's investigations and observations, the nature of the adsorptive, that is, the solute, plays a most important part in the decolorizing of oils. To prove the correctness of this theory, we have carried out bleaching experiments on a paraffin wax distillate and on vegetable oil. It was found that the wax distillate contained coloring materials in the crystalloidal form while the vegetable oil contains color in the form of colloidal mucilages and albumins which are separated in the process as flocculent precipitates. Study of the behavior of these two oils forces us to the conclusion that two reactions occur during the decolorizing of oils, an adsorption of the adsorptive material, and the separation of the adsorptive as a flocculent. In the first case the microscopic channels of the adsorbent will be filled with certain coloring materials; in the second, the coloring matter will be precipitated on the surface of the adsorbent. It follows that both an external and an internal adsorption phenomenon occurs in the bleaching process.

Rakusin (6) showed a relationship between the adsorption and the chemical reactions. Our investigations do not confirm the correctness of his theory. We extracted the adsorbed oil from a bleaching earth with 95% alcohol, by which we obtained coloring materials identical with that dissolved in the oil solution. If Rakusin's theory is correct, this adsorbed material would always show a change in its chemical structure. It is true that chemical reactions sometimes take place during but independent of the adsorption process. The reason for this is that some bleaching clays contain considerable quantities of carbonates and alkaline earths, which form calcium and magnesium soaps during the process. For example, the natural clay "Carlonit" possess a high decolorizing power, but is also able to neutralize acid oils, containing basic components which combine with the acidic components of the oil.

The reaction of an absorbent is not momentary, but requires up to 10 minutes to complete. After this time, the bleaching effect is not improved by extending the time to as much as 30 minutes. Actually, when treatment is extended beyond the 30-minute period the efficiency of the action decreases. According to the author's observation, this phenomenon can be illustrated by the following table:

Duration of treatment Minutes	Adsorption efficiency Per Cent
3	50
4	55
5	65
6	85
7	95
10	100
15	100
20	100
30	99
60	85
90	82

These data show that a long treatment time results to the detriment of the bleaching effect. Furthermore, long treating time considerably increases the acid value of the oil especially in the case where the artificially activated earth contains a large percentage of water. The influence of temperature on adsorption is usually very small. In most cases the adsorption is somewhat greater at lower temperatures than at higher levels. In this connection it must be noted that boundary tensions usually decrease with rising temperature.

The adsorption effect may be determined from the heat of wetting. Gurwitsch (7) determined this heat for a group of liquids, comparing them with two absorbents such as floridin and charcoal. According to his results, Gurwitsch concluded that those liquids show the greatest heat of wetting which may be considered as most active chemically. Thus, the unsaturated hydrocarbons show the highest heat of wetting; next the compounds of oxygen and nitrogen, these latter having a tendency to be transformed into compounds having three to five valences. Saturated and naphthenic hydrocarbons show a lower heat of wetting, with aromatics placed between the unsaturated and the saturated-and-naphthenic materials. Therefore, the greater the complexity of the molecular structure, the stronger the absorptive power.

SOMETIMES a darkening of the clay, after use in decolorizing, is observed. The cause of this is the polymerization of various unsaturated hydrocarbons, caused by iron and aluminum salts present. As mentioned earlier in this article, the iron oxide in the Spanish earth acts as a catalyst, and in the author's opinion, certain iron *salts* act as polymerization catalysts. Traces of aluminum chloride in the artifically activated clays play an important part in the polymerization of hydrocarbons on the adsorptive surface of clays.

As is well known, gasoline vapors in passing through fuller's earth or other clays have a portion polymerized to higher boiling compounds which are condensed in the operation at the vapor temperature. Diolefin hydrocarbons are considered to be those most readily polymerized by clays. It is an important matter, however, to use clays which possess the constituents able to produce such a polymerization. In a one-pass treatment of gasoline vapors, the diolefins appear to be readily polymerized and the gasoline entirely decolorized. Later, however, the gasoline develops a yellow color and becomes progressively darker as time goes on. The cause of this lies in the aluminum chloride content of the activated clay. We believe that when bringing gasoline vapors into contact with clay, there are formed unknown compounds by the aluminum chloride action which are gasoline-soluble, and form gums in the gasoline on standing. These compounds act as catalysts, the reaction progressing slowly at first, increasing in rate with the formation of more catalyst.

This theory has been practically established by the author's investigations and may be explained as follows: the combined action of the earth and chloride on the unsaturated hydrocarbons forms certain unknown, active, highly unsaturated bodies which are able to react, combining in the first phase two or more molecules of unsaturated, cyclic and aro-

matic hydrocarbons. In the second reaction phase the polymerized compounds change their internal structure, splitting the molecule which acted as catalyst, and forming another molecule of the same catalyst. This results in a considerable reduction of the anti-knock value. This reaction in a colorless gasoline appears to be a case of auto-catalysis, and the reason why many refiners prefer natural earth in their processing.

As previously mentioned, two types of natural clays exist. Besides these two, a third type, the so-called bauxite, is known. Bauxite, a mineral discovered by Bertier 50 years ago, has aluminum oxide as its chief constituent. The analysis of a Spanish bauxite by the author showed the following composition:

SiO_2, 2.2%; Al_2O_3, 52.2%; Fe_2O_3, 25.2%; combined water, 20.4%

THE chief characteristic of bauxite is its chemical affinity for gaseous and liquid sulfur compounds. According to our investigations, the desulfurization of oils by bauxite is a function of its external surface; that is, the removal of sulfur increases with the fineness of the bauxite. The action however, decreases beyond a certain degree of fineness. The reason for this is the clogging of the long, narrow microscopic channels by the sulfur compounds, thus decreasing the effective surface of the material. Also, the water content of the mineral plays an important role in desulfurizing oils, the greater the water content the more difficult its desulfurizing action. The water being on the external surface of the bauxite, it thus decreases the active surface or field of the absorbent. This necessitates dehydration of the bauxite, which is accomplished by calcining at a proper temperature, usually 200 C. (392 F.), or above. Many investigators claim that a temperature of 600 C (1112 F.), increases the efficiency of sulfur removal. The Burmah Oil Co. grinds bauxite to grains of 10-80 mesh, heating it afterward to a temperature of 400-600 C. (752-1112 F.), in special revolving furnaces. The Anglo-Iranian Oil Co. desulfurizes oils with bauxite at a temperature of 200 C. (392 F.).

Thus bleaching clays are divided into three main types.

1. Bauxite, whose external surface causes a desulfurization and decolorization of oils. Since the water content weakens the sphere of action, a calcination at 400-600 C. (752-1112 F.) must be carried out before use. Exceeding this temperature reduces the desulfurizing action, for the reason that the aluminum and iron oxides may be split up.

2. Bleaching of medium activity, with the montmorillonite structure, the channels being partly filled with other silicates. In this case the action of dilute acids leaches the remainder of the soluble silicates from these channels. Example, fuller's earth.

3. Inactive bleaching clays with montmorillonite structure, their microscopic channels being completely filled with other silicates. With this type strong acids must be used to remove the soluble silicates. Example, bentonite.

In the earlier days of the refining industry the medium active clays fulfilled their purpose. The recent demand for highly decolorized oils has been so great that investigators have studied intensively all methods for increasing the bleaching efficiency of clays. Kohlendorfer (8) was the first to discover that the leaching treatment improves the effectiveness of clay. He ground a clay and mixed it over a considerable time with a 10% sulfuric acid solution, at 100 C. (212 F.). It was then neutralized with ammonia, filtered and dried, resulting in a product with a considerably improved bleaching effect.

This treated clay however, did not give the desired results because the leaching had not been properly carried out. The author has not observed that the concentration of the acid plays any very important part. Various methods have been proposed to increase the efficiency of the treatment, most of them being manufacturer's secrets. Most of these methods, however, consist of treating an inactive but activatable clay with concentrated hydrochloric or sulfuric acid solutions under proper conditions.

Two factors play the most important parts in this leaching process; the maintenance of an unchanged acid concentration during treatment at 100-110 C., (212-230 F.) and the time of continuation of treatment. This process therefore gives considerable trouble. The mixed acids and water evaporate rapidly, which may even completely dry the paste. This results in superheating the solidifying mass, thus destroying the structure of the microscopic channels.

For this reason a different procedure is used to avoid the alteration of the acid concentration during treatment. Even all these methods have not wholly solved the problem. Evaporation of the solution takes place rather slowly, but at that changes in concentration could not be avoided. This method is therefore applicable only to clays whose silicates, plugging the channels are easily dissolved in a short time by the hot acid, or during a period of about four hours. Many types of clays include silicates difficultly soluble under these conditions, and whose channel structure is very sensitive also to hot concentrated acids. In these cases the leaching process must extend over a period of 10-24 hours, using first a concentrated and later a dilute acid solution.

To avoid these disadvantages the author has changed the treating agitator to one of the reflux type, the vaporized acid-water mixture being condensed continuously and returned to the heating vessel. Thus maintaining the acid concentration. the agitator is heated by an inside steam coil.

IN ATTEMPTING to improve the process, potassium or sodium salts such as chlorides and sulfates were added to the acid solution. The leaching action appears to proceed to a state of maximum activity, due apparently to the formation of acids *in statu nascendi*, these acids having a greater leaching power than the ordinary corresponding acids. Even clays formerly difficult to leach have shown most favorable results when treated by this method.

But it must be noted here that bleaching clays are not able to decolorize all oils to the same degree. Frequently it has been observed that the use of the same clay in treating oils from different sources does not result in oil of the same degree of decolorization. For each clay there seems to be a maximum bleaching action for each type of oil, differing with different oils.

The reason for this is that the microscopic channels of different clays are not of the same dimensions, and it is easy to understand that long narrow channels would be able to adsorb materials differing from those adsorbed by short, wide channeled clays. As mentioned before, the adsorbable materials in oils may exist in either the crystalloidal or the colloidal form. In petroleum oils the crystalloidal inhibitors exist in various forms. They can exist dissolved in the oil as pure compounds, and also as mixtures of compounds, the latter condition making it impossible to properly bleach the oil with any one type of clay. From the above it is obvious that the same microscopic channel structure is not able to adsorb all types of coloring matter from oils, for which reason many refiners find it ueful to employ various mixtures of different earths in treating oils.

Some refiners also prefer to use a basic clay, to neutralize and decolorize at the same time, these clays owing their basicity to the presence of carbonates. Examination of different clays of this type has not shown any exact neutralization value. Clays containing carbonates which may be transformed into sulfates by sulfuric acid treatment, for example, may

show incomplete neutralization of the oil, it being assumed that the acid forms sulfurous acids which are not strong enough to dissolve the carbonates. This hypothesis is confirmed by the fact, that in all tests which have been made, only a small portion of the acid could not be eliminated. The acidifying process therefore must be carried out in a way to avoid the acid attacking the oil, concentrating its action on precipitation of the colloidal asphalt.

To accomplish this result, oil was treated with 64.0 Be. acid, instead of 66 Be. Subsequent treatment with a basic clay effected a complete neutralization, which however, shows some disadvantages. Dilute acid sludges show more resistance to settling than that from concentrated acid, resulting in an increase of treating time. The dilute acid sludge absorbs more oil, increasing treating loss from that cause. The dilute acid has only a weak effect on certain oils in separating the tarry matter, and the oil color always is darker than when treated with concentrated acid. For these reasons further investigations were carried out on basic clays, which have proved the existence of two types of these clays:

1. Clays whose basic reaction is caused by the internal structure of the material, such clays presenting silicates one of whose components is a carbonate. Treating acid oils with such clays produces reaction between acid and carbonates, destroying the microscopic structure of the clay.

2. Clays whose channel structure was originally filed with carbonates which have been leached out through thousands of years of degradation by weathering. As example, "Carnolit" coming from the volcanic region of the mineral water springs of Carlsbad, the carbonates of which have been removed by hot water since prehistoric times. A thin layer of carbonate has remained on the channel surfaces.

This condition causes an adsorption of the acid asphalts. In the light of these facts, it is easy to see that the activity of a clay depends on its microstructure. A clay must be chosen whose structure is such as to adsorb only the undesirable components of the oils treated without adsorbing the oil itself.

Consider now the behavior of the Carnolite type. Our investigations have shown that an oil treated with 66.0 Be. acid can be entirely neutralized by this type of clay, to obtain which result a small percentage of water is needed. The water diluting the acid not only favors the acid-carbonate reaction, but also increases the adsorptive power of the clay.

The refining process has therefore been developed by the author as follows with the aid of a basic clay; oil is treated with 4-7% of 66.0 Be. sulfuric acid, and after its deposition the tar is drawn off. Then 0.3 to 0.6% water is added to the oil and clay which is heated to 70 C. (158 F.), and filtered. In this way completely neutralized oil was obtained, but the desired decolorizing effect was not reached, as the clay was able to adsorb only the acid components of the oil, of asphaltic and resinous nature, while the crystalloid color material remained dissolved in the oil. Therefore another clay with a different structure must be used. A basic clay acts primarily as a neutralizing agent and only secondarily as a bleaching agent.

Viewing the bleaching process in the light of the above, we reach the conclusion that in the choice of a proper bleaching clay a suitable mixture of clays is important in obtaining the desired results. Crude oils contain two undesirable groups of materials, colloidal compounds of tars and resins, and coloring matter of varying crystalloidal structure. The oils also contain different quantities of oxygen, nitrogen, sulfur, chemically bound to various types of hydrocarbons. Therefore the process becomes a complicated one, because an efficient refining method requires a clay of the proper structure and characteristics for each type of material which is to be removed.

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Looking out over the Pacific ocean and over the International Petroleum Co.'s tank farm at the Negritos, Peru, oil field. The company is a Canadian subsidiary of the Standard of New Jersey

COMPARATIVE COSTS

Of Vapor Phase & Other Treating Processes

By M. R. MANDELBAUM* and PAUL SWANSON**

(Presented before the Shreveport, La., section of the W. P. R. A. technical division, Nov. 6, 1936 under the title, "Economics, of Gray Vapor Phase Treating of Cracked Distillates").

GRAY vapor phase treatment of cracked distillates has been practiced commercially for more than 12 years. The process has had wide application for the removal of color bodies and of objectionable unsaturated hydrocarbons from cracked gasolines wherever no reduction in contained sulfur compounds was required.

The basic principle of the process, namely, the clay contacting of gasoline maintained in the vapor phase, permits installation of treating equipment adjacent to cracking unit bubble tower systems from which cracked gasoline vapors are normally issuing. This adaptability of the process, which enables it to become an integral part of a major cracking system, contributes to the simplicity of the over-all cracking and treating process. The lack of moving parts reduces direct operating labor and maintenance to a minimum.

The growth of the vapor phase clay process is indicated in Fig. 1, which illustrates the total installed capacity of the process for each of the last eleven years, in the United States and in foreign countries.

ADVANTAGES OVER ACID TREATING

Acceptance of the process has been due to a number of factors. These offset the fact that vapor phase treatment is usually limited, because of apparent lack of reaction between the clay and sulfur compounds in the gasoline, to gasolines of relatively low sulfur content. Primarily the process utilizes an adsorption medium to remove color bodies, this same medium simultaneously removing objectionable unsaturated hydrocarbons through polymerization to a higher boiling range. Sulfuric acid was originally employed for this purpose. The acid contacting method, however, has certain disadvantages which are avoided or minimized by the use of vapor phase clay treating.

The factors favoring clay treatment are:

1. Negligible yield losses;
2. Negligible octane reduction;
3. Reduced maintenance, labor, and utility requirements.

Theoretically the removal of polymers and of color bodies from the raw gasoline represents a volumetric loss in the production of finished gasoline. However, this loss in volume is negligible. It is possibly offset by polymerization of light hydrocarbons, and is hardly subject to quantitative measurement. Tests have been conducted on commercial units to gauge the yield of finished gasoline compared to raw charge. They consisted of taking tank gauge readings of daily production of cracked gasoline from a cracking unit equipped with clay towers, first with the treating equipment in service and then with this equipment bypassed. The cracking conditions were maintained constant, and no consistent decrease in quantity of product was observed.

Vapor phase treating normally removes the objectionable color and gum constituents of gasoline without any accompanying reduction in octane value of the product. An acid treated product, on the other hand, usually has an octane value ½ to 2 points lower than the raw charge, even for a light acid treat where sulfur removal is no problem. Vapor phase treating requires negligible operating supervision and maintenance. Due to the small number of moving parts the

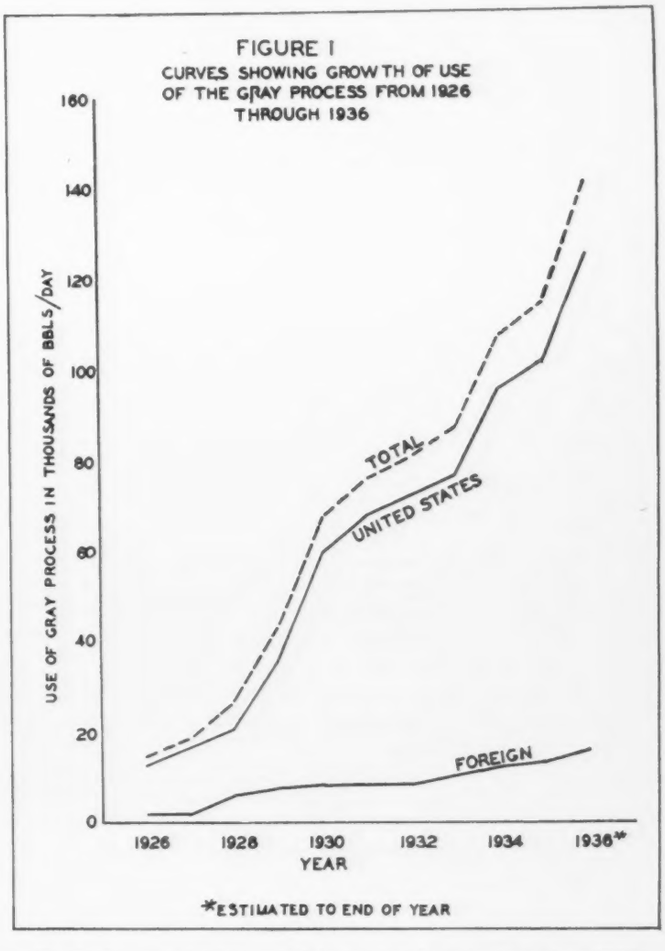

Fig. 1. Increase in the use of clay vapor-phase treating since 1925

* Gray Processes Corp: ** M. W. Kellogg Co.

process requires no routine attention except the laboratory check of quality of products, infrequent changing of clay, and occasional inspection of supporting screens. With the substitution of KA-2 for the former Monel Metal, the maintenance cost of screens has been reduced.

COST OF CLAY TREATING EQUIPMENT

The determining factor affecting the installation cost of clay treating equipment is the volume of clay required for the treatment of a fixed quantity of cracked gasoline. This factor may be expressed as "barrels of clay-treated distillate per ton of clay per hour," which normally ranges from one to four barrels per ton per hour, or even more conveniently as "time of contact" between the clay and the gasoline vapors. To determine "time of contact," calculations are made on the assumption that 60 per cent of the clay bed consists of voids. For a throughput of 4 barrels per ton per hour, at 200 pounds tower operation, the "time of contact" is around 300 minutes. This is substantially the same "time of contact" that obtains in a 50-pound tower system with a thruput rate of only one barrel per ton per hour.

Theoretically, therefore, a high pressure tower system will produce the same quality product as a low pressure system with a much reduced clay requirement. This fact is substantiated by the high pressure commercial operations of several large refining companies, where approximately one-fourth as much clay is used as in operations at 50 pounds pressure. However, the reduced size of clay towers required for the 200-pound operations is partially offset by the increased wall thickness necessary for the higher pressure, and by the necessity for changing clay beds more frequently.

The total cost of materials and erection of clay treating units complete with after-fractionating equipment varies from

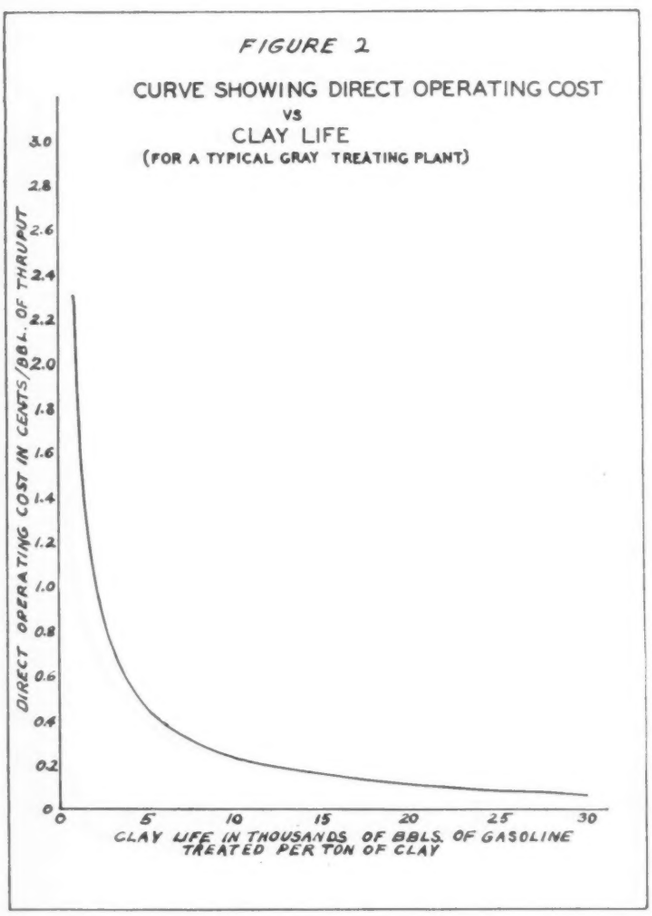

Fig. 2. Relationship between direct clay treating costs and the life of the clay

$15 to $25 per barrel of daily treated product. This figure fluctuates with capacity, rate of treatment referred to above, and quantity of materials used, as well as with the general arrangement of equipment.

The lump sum royalty is $35 per barrel of daily average production of clay treated gasoline. This may be paid over a period of three years.

OPERATING COSTS

The direct operating cost is dependent chiefly on the cost of the adsorbent clay used and on the life of the clay. One refiner expresses direct cost of operation as dollars per ton of clay used. This figure is derived as follows:

	Per Ton
Cost of Clay Delivered	$16.00
Clay Charging	0.50
Clay Disposal	0.75
Steam for Process	3.00
Steam for Auxiliary	1.25
Total	$21.50

To this total should be added the cost of maintenance, for which $1.50 per ton of clay charged is considered a fair figure. The total direct cost thus rises to $23 per ton of clay. The direct cost per barrel of clay treated gasoline is obviously a function of the life of the clay.

Fig. 2 illustrates this relationship, assuming the base operating cost of $23 per ton of clay indicated above. Treating costs vary from 2.3 cents per barrel for a life of only 1,000 barrels per ton, to a minimum of 0.077 cent for a throughput of 30,000 barrels per ton of clay. These figures are probably extremes for commercial operation. A number of factors influence the life, such as:

1. Degree of refining required,
2. Temperature and pressure conditions for clay treating,
3. Cracking conditions,
4. Source of raw cracking stocks,
5. Lack of uniformity in the tests employed to determine a satisfactory product.

The first of these, the wide variation in quality of product required, has a most pronounced effect on the life of the clay.

It is difficult to appraise quantitatively the factors which influence clay life, but typical commercial operations may be profitably examined. For example, 50-pound tower operations on products cracked at a relatively mild temperature but with very severe specifications on the clay-treated cracked product are carried out under the following conditions:

Product Specifications:

Copper Dish Gum	20-30 mg.
Initial Color	+ 27
Induction Period	4 hrs. pressure bomb
Sunlight Stability Color	+ 23

Operating Conditions:

Tower Pressure	50 lbs. ga.
Throughput Rate	1 bbl./ton clay/hr.
Contact Time	250 seconds
Cracking Temp. with Reduced Crudes	not over 900° F.
Cracking Temp. with Gas Oils	not over 900° F.
Clay Life, Reduced Crude Operation	1000-2000 bbls./ton
Clay Life, Gas Oil Operation	5000 bbls./ton

It would seem much more difficult to treat cracked distillates from reduced crudes than those from gas oils.

High pressure treating of cracked distillate from reduced crudes is conducted for a life of 4000-5000 barrels per ton thruput meeting the relatively severe specifications noted above.

Other operations conducted to produce gasolines of + 23 initial color, + 17 sunlight stability color, no copper dish specifications, with inhibitors added to meet induction stability test show a clay life of 10,000-20,000 barrels per ton.

A recently built combination unit equipped with high-pressure clay treating equipment has made runs of 27,000 barrels throughput per ton of clay. The product, after blend-

ing with approximately 25% straight run, contained less than 20 mg. copper dish gum. The initial color of the clay-treated product itself remained above 25 throughout the run. Inhibitor was added to the blended gasoline to provide the required oxygen stability. However, it was found that the responsiveness of the clay treated product to inhibitor was double that of the raw untreated product.

A study of commercial treating operations shows that a 4000 barrel per ton clay life is a conservative average. Such a life would involve an operating cost of 0.57 cent per barrel clay treated product.

Costs Compared With Acid Treating and Rerunning

An intelligent comparison of the cost of clay treating with acid treating and rerunning can only be made by studying a particular refinery set-up. However, an approach to the problem can be made by considering a typical case. This may clarify the factors involved and show the extent to which each influences the overall result.

Table I summarizes the direct costs and losses for a refinery acid treating and rerunning operation compared with clay treating of the same quantity of raw cracked distillate.

Table II shows individual items of the processing costs.

Tables III and IV contain cost analyses of the two processes.

The acid treating practice involves the following steps:

1. Debutanization to eliminate light ends which do not require treatment,
2. Acid treatment of debutanized product,
3. Steam stilling of acid treated gasoline,
4. Vacuum distilling of bottoms from steam stilling.

Tables I and II include the direct cost for each operation involved in the acid treating practice. The comparative losses are also indicated.

TABLE I

Comparative Costs, Acids vs. Clay Treating

Summary

Basis—5000 Bbls. per Day Raw Gasoline Thruput

	Acid Treating	Clay Treating
Direct operating costs, $ per bbl. raw gasoline	6.75	2.65
Value of original raw gasoline*, $ per bbl.	2.35	2.49
Differential profit, exclusive of fixed charges and royalties, $ per day	...	7.00
Distribution of raw gasoline:		
Treated gasoline, %	95.62	99.00
Bottoms, %	1.60	1.00
Loss, %	2.78	...

*Calculated value of charge stock based on 6 cents per gal. finished gasoline selling price.

TABLE II

Items of Processing Costs

Basis—5000 Bbls. per Day Raw Gasoline Thruput

Acid Treating		
Debutanization		0.0050
Overhead	31%	
Bottoms	69%	
Acid Treating		0.0172
Yield	98.0%	
Loss	2.0%	
Steam Distilling		0.0085
Overhead	38.8%	
Bottoms	59.7%	
Loss	1.5%	
Vacuum Distilling		0.0048
Overhead	95%	
Bottoms	4%	
Loss	1%	
Tetraethyl Lead		0.0120
Sweetening		0.0200
Total		0.0675
Clay Tower Treating		
Clay*		0.0057
Sweetening		0.0208
Total		0.0265

*Includes steam, maintenance, etc.

TABLE III

Economic Appraisal of Acid Treating and Rerunning

Basis—5000 Bbls. Per Day Raw Gasoline Thruput

Direct Operating Costs

	Per Day
Debutanization	
5000 bbls. @ $0.005 per bbl.	$25.00
Acid Treating	
3450 bbls. (69% debutanizer bottoms) @ $0.025 per bbl.	86.20
Steam Distilling	
3381 bbls. (from acid treat less 2% loss) @ $0.0125 per bbl.	42.30
Vacuum Distilling	
2020 bbls. (steam still bottoms) @ $0.012 per bbl.	24.25
Total	$177.75
Sweetening	
4781 bbls. total treated gasoline @ $0.021 per bbl.	100.00
Tetraethyl Lead, 0.1 cc per gal.	
4781 bbls. x 0.1 x 42 @ $0.003 per cc	60.20
Grand Total	$337.95
Total per bbl. raw gasoline	$0.06751

Distribution of Raw Gasoline

Bbls. Per Day & Per Cent Charge to Unit

Unit	Gasoline Bbls.	%	Bottoms Bbls.	%	Loss Bbls.	%
Debutanizer	1550	31.0	3450	69.0	..	..
Acid Treater	....	...	3381*	98.0	69	2.0
Steam Still	1311	38.8	2020	59.7	50	1.5
Vacuum Still	1930	95.0	80	4.0	20	1.0
Total	4781		80		139	
Total = % raw gasoline	95.62		1.60		2.78	

*Acid Treated Pressure Distillate.

Value of Original Raw Gasoline

	Per Gal.
Value of Products	
Treated Gasoline	$0.06
Vacuum Still Bottoms	0.03
Total Value	
Treated Gasoline, 4781 x 42 x 0.06	$12,030
Vacuum Still Bottoms, 80 x 42 x 0.03	101
Less Operating Costs	338
Net Value of Stock	$11,793
Value per Bbl.	2.35

TABLE IV

Economic Appraisal of Clay Treating

Basis—5000 Bbls. Per Day Raw Gasoline

Direct Operating Costs

(Cost of clay, $16 per ton. Life, 4000 Bbls. per ton)

Clay Treating	
5000 x 23/4000*	$28.70/day
Sweetening	
4950 bbls. (from treater less 1% bottoms) @ $0.021 per bbl.	103.95/day
Total	$132.65
Total per bbl. raw gasoline	2.65

Value of Original Raw Gasoline

	Per Gal.
Value of Products	
Treated Gasoline	$0.06
Bottoms	0.03
Total Value	
Treated Gasoline, 4950 x 42 x 0106	$12,500
Bottoms, 50 x 42 x 0.03	63
Less Operating Costs	133
Net Value of Stock	$12,430
Value per Bbl.	2.49

*This cost includes steam, maintenance, etc.

It is observed that an over-all recovery of 95.62% is shown for the acid treating and rerunning operation. The loss consists of 2.78%, which includes acid solution, handling, and distillation loss, and 1.60%, which is assumed to be the true polymerization. In actual practice the bottoms from rerunning may be 10%, but this is not a degraded product from the operation, as it results normally from undercutting end point to provide bottoms for the distillation operation. The polymer loss from the clay treating operation is assumed to be 1%.

Table III summarizes the economic appraisal of acid treating and rerunning. The table includes the daily cost of each operation and the yield from each stage of the combined processing.

There is also included a leading cost to offset the octane

degradation assumed and the final cost of sweetening.

The combined direct operating cost is 6.75 cents per barrel of raw gasoline. The charging stock value, which is the realization from products minus direct operating cost, is $2.35 per barrel raw charge.

Table IV shows cost items for clay treating. It is assumed that the sweetening cost is the same for the two methods of treating. The charging stock value is $2.49 per barrel compared to $2.35 for acid treating and rerunning. The difference represents $700 per day saving in favor of clay treating. No fixed charges or royalty costs are included in the comparison. The equipment cost for acid treating and rerunning, including auxiliary tankage cost, would be materially higher than for clay treating.

It must be understood that the above economic comparison cannot be considered as generally applicable to all refinery gasoline treating operations. The operation of each individual refiner is a peculiar problem and requires special study. This reference to individuality of the problems confronted applies particularly to the possible use of inhibitors to produce stability, either without or in conjunction with acid treating or clay treating operations.

REVIEWS OF NEW REFINING PATENTS

Lubricant. No. 2 054 721, issued Sept. 15, 1936; filed March 14, 1934; C. M. Clementson, assignor to C. & S. Clementson, Malmo-Limhamn, Sweden; no drawing; 3 claims.

• Method of making a corrosion-inhibiting top lubricating oil for internal combustion engines, which comprises homogeneously incorporating with a conventional top lubricating oil, a small amount of a solution obtained by reacting a peroxide of a fixed alkali with an alcohol.

* * *

Dewaxing. No. 2 053 537, issued Sept. 8, 1936; filed Feb. 27, 1935; L. D. Jones, assignor to The Sharples Specialty Co.; no drawing; 10 claims.

• The invention consists in the discovery that certain compounds, particularly $C_4H_8Cl_2$, believed to be dichlor butanes, possess advantages in wax extraction. The compound is believed to be 1.3 dichlor, 2 methyl propane, which has a boiling point of 136 C. (276 F.), specific gravity of 1.1375 at 15.5 C. (59.9 F.), and a refractive index of 1.4492 at 20 C. (78 F.). It also has a relatively low vapor pressure.

* * *

Dewaxing. No. 2 054 777, issued Sept. 15, 1936; filed May 31, 1933; J. T. Ward, assignor to Gasoline Products Co.; one drawing; 4 claims.

• Process of recovering pressable wax from crude oil. Oil is first distilled, separating a fraction containing pressable wax substantially free from non-pressable wax, lighter products, and heavy material containing the bulk of the non-pressable wax. The heavy material is cracked to bring non-pressable wax constituents into pressable form. The resultant cracked products are combined with the pressable wax fraction. The volatilized portion of the mixture is fractionally condensed to recover a pressable wax distillate.

An object of the invention is to avoid cracking of wax initially recoverable in pressable form while subjecting the initial yield of amorphous or non-pressable wax to an operation which tends to produce wax in pressable form and at the same time reduces to a minimum loss of lubricating oil constituents through pyrolysis.

* * *

Conversion. No. 2 055 896, issued Sept. 29, 1936; filed April 30, 1934; J. B. Heid, assignor to Universal Oil Products Co.; one drawing; 11 claims.

• Process of conversion wherein selected low and high boiling fractions of the intermediate conversion products (reflux condensate) are each subjected to independently controlled conversion conditions in the same system.

The improvements comprise methods for subjecting normally gaseous products and/or gases from any desired external source, to two-stage absorption. Raw oil charging stock is used as absorber oil in one stage and the enriched raw oil then subjected to conversion, together with high boiling fractions of the intermediate conversion products. Selected low boiling fractions of the intermediate conversion products are utilized as absorber oil in the other stage and the enriched oil from this stage is subjected to independently controlled more severe conversion conditions in the same system.

* * *

Sweetening. No. 2 056 618, issued Oct. 6, 1936; filed Dec. 27, 1932; W. V. Overbaugh, assignor to The Texas Co.; two drawings; 3 claims.

• Method for increasing the efficiency of sweetening sour naphtha. Sour naphtha is diluted with sweetened naphtha and the resulting solution subjected to treatment, with either an alkaline sodium plumbite solution or a suspension of lead sulfide in an alkaline solution.

* * *

Emulsion breaking. No. 2 056 763, issued Oct. 6, 1936; filed Oct. 30, 1935; G. S. Bays, assignor to Stanolind Oil and Gas Co.; 5 drawings; 10 claims.

• Process in which emulsions are rolled in thin films or discrete globules through a body of water in contact with a wooden surface.

Apparatus comprising a tank and a number of wooden baffles disposed at small angles to the horizontal in zig-zag relationship to each other and covered with water.

A petroleum emulsion is introduced into the tank below the baffles and is broken in passing upward through the body of water along the lower surfaces of the baffles in succession. The aforesaid rolling action along the under side of troughs tends to break the film separating the oil in the emulsion from the water or brine. The use of wood in place of other material is said to have a real advantage.

Treatment. No. 2 057 424, issued Oct. 13, 1936; filed May 18, 1931; G. Egloff and J. C. Morrell, assignors to Universal Oil Products Co.; one diagram; 6 claims.

• Treatment of oil vapors with hydrochloric acid and solutions of salts of mercury in the presence of solid contact substances which have catalytic, polymerizing or chemical influences.

* * *

Treatment. No. 2 057 432, issued Oct. 13, 1936; filed Oct. 26, 1932; V. Ipatieff and A. V. Grosse, assignors to Universal Oil Products Co.; no drawing; 6 claims.

• Process for increasing the anti-knock value of gasoline by reacting at least a portion with an olefin in the presence of a heavy metal halide catalyst selected from the group of compounds having the formulas RMX_2, R_2MX, MX_3, $C_6H_nR_{6-n}$, and MX_2, $C_{10}H_nR_{8-n}$, where in M, X and R equal, respectively, a heavy metal, a halogen and an alkyl radical.

* * *

Polymerization. No. 2 057 433, issued Oct. 13, 1936; filed May 23, 1934; V. Ipatieff, assignor to Universal Oil Products Co.; no drawing; 5 claims.

• Process for the conversion of normally gaseous olefins into liquid hydrocarbons which comprises subjecting olefinic gas at polymerizing temperature to the action of a solid catalyst comprising a calcined mixture of pyrophosphoric acid and a solid adsorbent.

* * *

Catalytic coating. No. 2 056 914, issued Oct. 6, 1936; filed March 18, 1933; F. Winkler and H. Haeuber, assignors to I. G. Farbenindustrie Aktiengesellschaft; one drawing; 2 claims.

• Heat treatment within a space enveloped by a heat-resistant metal internally coated with a layer consisting of an element of the 4th group of the periodic system having a melting point of 1000-2000 C. (1830-3630 F.) burnt in the said metal in pulverulent form. The layer may be silicon or titanium.

* * *

Polymerization. No. 2 056 978-9, issued Oct. 13, 1936; filed April 26 and Nov. 20, 1930, respectively; R. C. Osterstrom, assignor to The Pure Oil Co.; two and one drawing respectively; 5 and 9 claims respectively.

• Method of accelerating the polymerization of gum-forming and color-imparting bodies in low-boiling cracked oils.

Oils admixed with fixed gas are heated while flowing in a stream to 600 F. while at 600-1000 pounds per square inch pressure and then brought in contact at this pressure with decolorizing adsorbent earth. The pressure is relieved and the products fractionated.

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